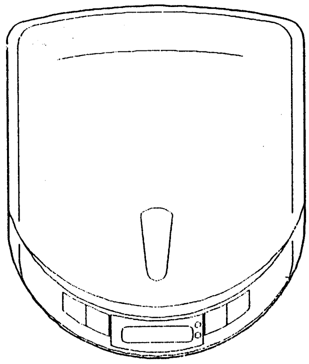
aiwa

aiwa
SERVICE

XP-220 XP-230
XP-250 XP-255
XP-350 XP-355
XP-S2 XP-S3
XP-AP1
XP-EX200



COMPACT CD PLAYER

• BASIC CD MECHANISM: KSM-542AAA
KSM-542CAA

• TYPE: AHE,AHR,AU,AE,YE,AK

MODEL	TYPE	MODEL	TYPE
XP-350	AHE, AHR, AU, AE, *AHE1	XP-250	AHE, AU, AE, AHR
XP-355	AHE	XP-EX200	AE
XP-S3	AHE, AHR	XP-230	YE
		XP-255	AHE, *AHR
XP-220	AHE, AU, AK, AE, AHR		
XP-S2	AK, AE		
XP-AP1	AE		

REVISION PUBLISHING

- This Service Manual is the "Revision Publishing" and replace "Simple Manuals"(S/M Code 09-969-132-9FE and XP-AP1 Simple Manual, S/M Code 09-968-152-0FE)
- Only *marked types are used KSM-542CAA CD mechanism.

SERVICE MANUAL

S/M Code No. 09-96B-138-8FE

ELECTRICAL MAIN PARTS LIST (XP-250/255/230/EX200, XP-350/355/S3)

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC			
	S0-006-651-000		IC,BA6656FV
	87-A20-161-010		IC,BH6505K
	87-017-745-010		IC,CXA1782BQ
	87-070-294-010		IC,CXD2508AQ
	87-070-299-040		IC,YSS231M<350,355,S3>
	87-070-298-040		IC,BH3563FV
	87-A20-144-040		IC,BA3574BFS
	86-HC6-608-010		IC,M38223M4-6HC
TRANSISTOR			
	89-334-397-880		TR,2SC3439-G/H
	89-113-695-680		TR,2SA1369-G/H
	87-026-608-080		TR,DTC123JK
	89-110-373-080		TR,2SA1037K-R/S
	89-324-123-080		TR,2SC2412K-R/S
	S0-103-431-100		TR,IMH4A
	87-026-237-080		TR,DTC124XK<AE,EX200,230>
DIODE			
	87-020-331-080		C-DIODE,DAN202K
	87-002-882-080		C-DIODE,RB425D
	87-002-750-080		DIODE,RB435C
	S0-210-990-900		ZENER,DTZ11A
MAIN C.B			
C101	87-016-044-040		CAP,E 100UF-16V
C102	87-016-557-019		CAP,E 100-6.3V
C105	87-016-557-019		CAP,E 100-6.3V
C106	87-010-483-010		CAP,E 220UF-4V
C110	87-016-557-019		CAP,E 100-6.3V
C213	87-010-078-010		CAP,E 47UF-6.3V
C214	87-016-557-019		CAP,E 100-6.3V
C302	87-010-499-010		CAP,E 22-6.3V
C308	87-010-074-080		CAP,E 4.7UF-35V
C310	87-016-557-019		CAP,E 100-6.3V
C315	87-010-499-010		CAP,E 22-6.3V
C318	87-016-557-019		CAP,E 100-6.3V
C327	87-010-078-010		CAP,E 47UF-6.3V
C328	87-010-078-010		CAP,E 47UF-6.3V
C356	87-010-483-010		CAP,E 220UF-4V
C358	87-010-499-010		CAP,E 22-6.3V
C705	87-010-074-080		CAP,E 4.7UF-35V
C706	87-010-074-080		CAP,E 4.7UF-35V
C710	87-010-499-010		CAP,E 22-6.3V
C754	87-010-074-080		CAP,E 4.7UF-35V
C758	87-010-498-010		CAP,E 10-16V
C759	87-010-499-010		CAP,E 22-6.3V
C760	87-010-420-010		CAP,E 10UF-4V
C773	87-010-483-010		CAP,E 220UF-4V
C774	87-010-483-010		CAP,E 220UF-4V
C831	87-010-420-010		CAP,E 10UF-4V
J101	87-099-391-010		DC,JACK LGP6501-0100
J701	S1-220-495-000		JACK,HP
L102	S0-510-721-700		COIL,100UH RCR-664D
L201	S0-540-160-000		COIL,CHOKE 470UH
L351	87-005-602-080		COIL,10UH
L352	87-005-602-080		COIL,10UH
LCD101	S1-400-670-000		HLC8934-011410<EXCEPT 350,355,S3>
LCD101	S1-400-660-000		LCD,HLC8806-011411<350,355,S3>
LED801	87-017-719-010		LED,373002FE4(GRN)
LED802	87-017-720-010		LED,133002FE40D(YEL)
LED803	87-002-799-010		LED,31002FE4(RED)
SFR301	87-024-411-080		SFR,47K
SFR302	87-024-462-080		SFR,100K
SFR303	87-024-411-080		SFR,47K
SW101	87-036-215-080		SW,TACT EVQ21404M
SW102	87-036-215-080		SW,TACT EVQ21404M
SW801	87-036-343-010		SW,SLIDE<AE,EX200,230>
SW802	87-036-263-010		SW,SLIDE<250,255,EX200,230>
SW803	87-036-263-010		SW,SLIDE
SW804	87-036-215-080		SW,TACT EVQ21404M
SW805	87-036-215-080		SW,TACT EVQ21404M
SW806	87-036-215-080		SW,TACT EVQ21404M
SW809	87-036-215-080		SW,TACT EVQ21404M
SW810	87-036-215-080		SW,TACT EVQ21404M<350,355,S3>
SW811	87-036-252-010		SW,PUSH SPPB51
VR701	87-024-685-010		VR,30KCx2 XV0102GPV1
X351	81-592-641-010		CERALOCK CSA16.93MXZ040
JACK C.B<EXCEPT XP-230>			
C101	87-016-044-040		CAP,E 100-16V
J101	87-099-391-010		DC,JACK LGP6501-0100

ELECTRICAL MAIN PARTS LIST (XP-220/S2/AP1)

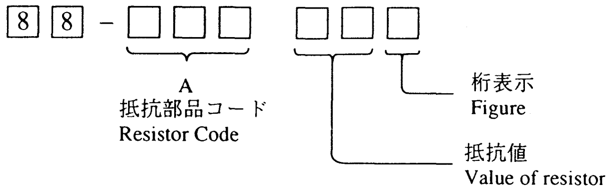
If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
IC			
	S0-006-651-000		IC,BA6656FV
	S0-006-721-000		IC,BA6892FP
	87-017-745-010		IC,CXA1782BQ
	87-070-294-010		IC,CXD2508AQ
	87-001-792-080		IC,NJM2100M
	87-A20-144-040		IC,BA3574BFS
	86-HC8-608-010		IC,M3822M2-157GP<EXCEPT AHE>
	S0-006-740-500		IC,M3822M2-157GP<AHE>
TRANSISTOR			
	89-213-292-380		TR,2SB1329-Q/R
	S0-106-890-200		TR,2SA1435
	S0-106-820-500		TR,2SA1286G
	S0-106-900-200		TR,2SC3068
	87-026-463-010		TR,2SA933AS-R/S
	89-109-340-480		TR,2SA934-Q/R
	87-026-484-080		TR,DTC123JS
	S0-104-041-100		TR,2SC2060-Q/R
	87-026-448-080		TR,2SC1740S-R/S
DIODE			
	87-A40-118-080		DIODE,RB100A
	87-020-465-010		DIODEE,1SS133
	S0-201-550-900		DIODE,RB441Q
	S0-201-540-900		ZENER,MTZJ10C
MAIN C.B			
C101	S1-602-215-1B0		CAP,E 220-16V
C102	87-010-503-010		CAP,E 220-4V
C105	87-016-350-040		CAP,E 470-4V 8 X 5
C106	87-010-550-010		CAP,E 100-6.3V
C110	87-016-557-019		CAP,E 100-6.3V S.F.USF0J
C207	87-010-549-010		CAP,E 47-6.3V
C302	87-010-499-010		CAP,E 22-6.3V UMA0J220MCA
C308	87-010-497-010		CAP,E 4.7-35V
C313	87-010-494-040		CAP,E 1-50V
C314	87-010-499-010		CAP,E 22-6.3V UMA0J220MCA
C316	87-016-557-019		CAP,E 100-6.3V S.F.USF0J
C318	87-010-503-010		CAP,E 220-4V
C327	87-010-549-010		CAP,E 47-6.3V
C328	87-010-549-010		CAP,E 47-6.3V
C404	87-010-493-040		CAP,E 0.47-50V UMA/HR47MDA

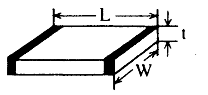
REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C406	87-010-503-010		CAP,E 220-4V
C413	87-016-557-019		CAP,E 100-6.3V S.F.USF0J
C610	87-010-499-010		CAP,E 22-6.3V UMA0J220MCA
C701	87-010-503-010		CAP,E 220-4V
C702	87-010-503-010		CAP,E 220-4V
C706	87-010-494-040		CAP,E 1-50V
C708	87-010-494-040		CAP,E 1-50V
C710	87-010-494-040		CAP,E 1-50V
C711	87-010-498-010		CAP,E 10-16V
C712	87-010-494-040		CAP,E 1-50V
C713	87-010-499-010		CAP,E 22-6.3V UMA0J220MCA
C715	87-010-550-010		CAP,E 100-6.3V
C751	87-010-549-010		CAP,E 47-6.3V
C801	87-010-494-040		CAP,E 1-50V
FB701	87-005-602-080		COIL,10UH
FB702	87-005-473-080		COIL 10uH LA02NA100K
FB703	87-005-473-080		COIL 10uH LA02NA100K
J101	87-099-391-010		DC,JACK LGP6501-0100
J701	87-099-385-010		LGY3309-0150C
L102	S0-511-031-700		COIL.100uH M RCH-87510M
L401	87-005-602-080		COIL,10UH
L402	87-005-473-080		COIL,10uH LA02NA100K
L701	87-005-473-080		COIL,10uH LA02NA100K
LCD101	S1-400-740-700		LCD,AIW4055
R306	87-005-473-080		COIL,10uH LA02NA100K
R316	87-005-473-080		COIL,10uH LA02NA100K
SFR301	S2-000-240-100		VR,47K EVND8AA03BQ4
SFR302	S2-000-240-100		VR,47K EVND8AA03BQ4
SFR303	S2-000-130-100		VR,100K EVND8AA03B15
SW101	87-036-215-080		SW,TACT EVQ21404M
SW102	87-036-215-080		SW,TACT EVQ21404M
SW701	87-036-343-010		SW,SLIDE<AK,AE,S2,AP1>
SW802	87-036-215-080		SW,TACT EVQ21404M
SW803	87-036-215-080		SW,TACT EVQ21404M
SW804	87-036-215-080		SW,TACT EVQ21404M
SW805	87-036-215-080		SW,TACT EVQ21404M
SW806	87-036-263-010		SW,SLIDE
SW807	87-036-263-010		SW,SLIDE
SW808	87-036-252-010		SW,PUSH SPPB51
VR701	87-024-685-010		VR,30KCx2 RK10J12UO
X401	81-592-641-010		CERALOCK CSA16.93MXZ040

○ チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding

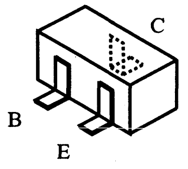


チップ抵抗
Chip resistor

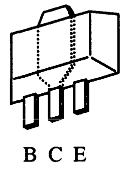
容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm)				抵抗コード ：A Resistor Code: A
				外形／Form	L	W	t	
1／16W	1608	±5%	CJ		1.6	0.8	0.45	108
1／10W	2125	±5%	CJ		2	1.25	0.45	118
1／8W	3216	±5%	CJ		3.2	1.6	0.55	128

TRANSISTOR ILLUSTRATION

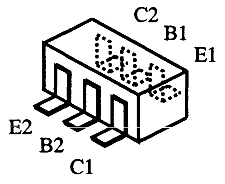
XP-250/255/230/EX200, XP-350/355/S3



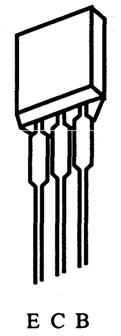
2SA1037
2SC2412
DTC123JK



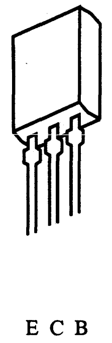
2SA1369G/H



IMH4A

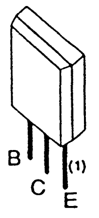


DTC124XK

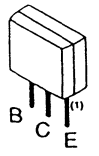


2SC3439

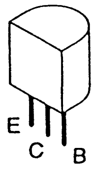
XP-220/S2/AP1



2SB1329

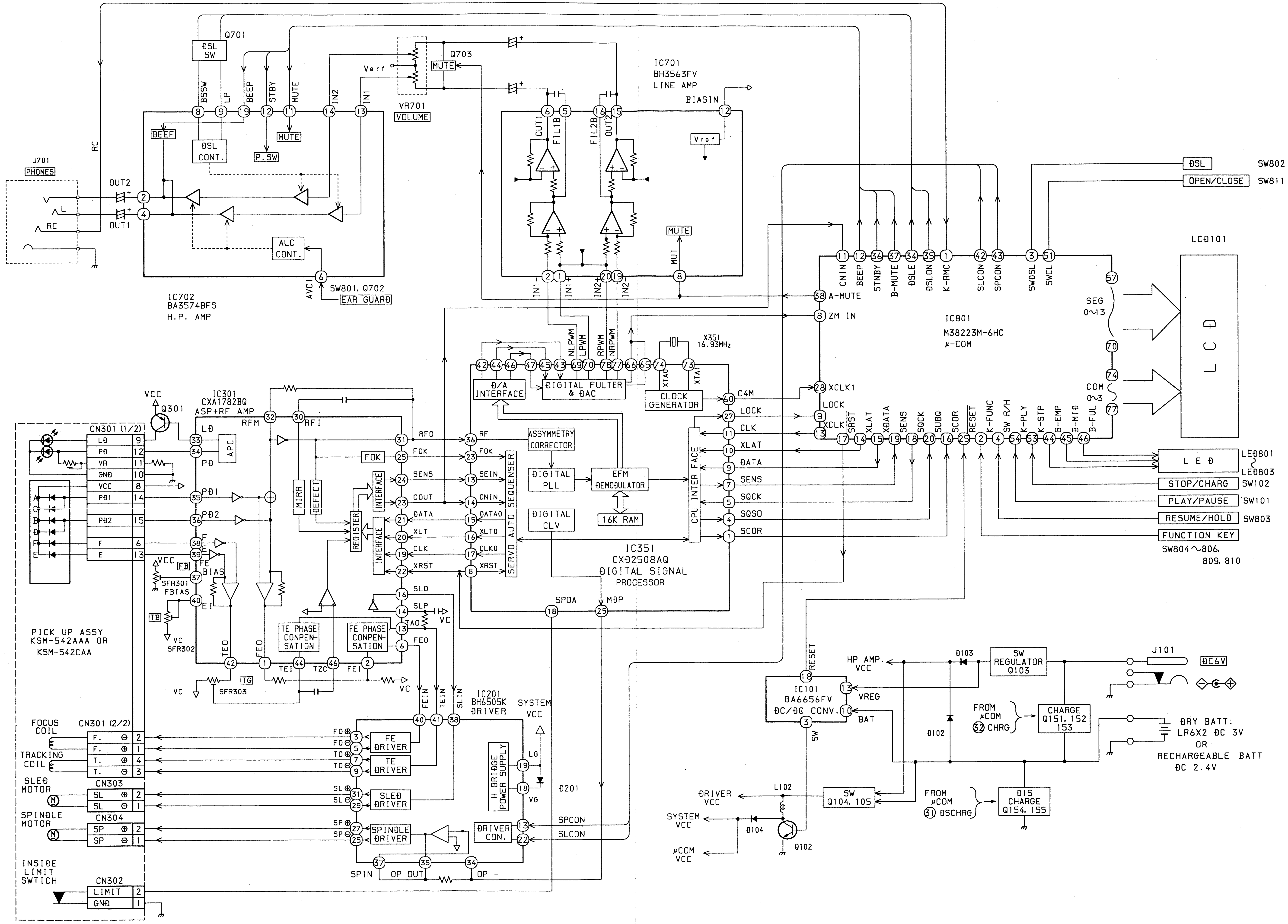


2SA933AS
2SC1740S
DTC123JS



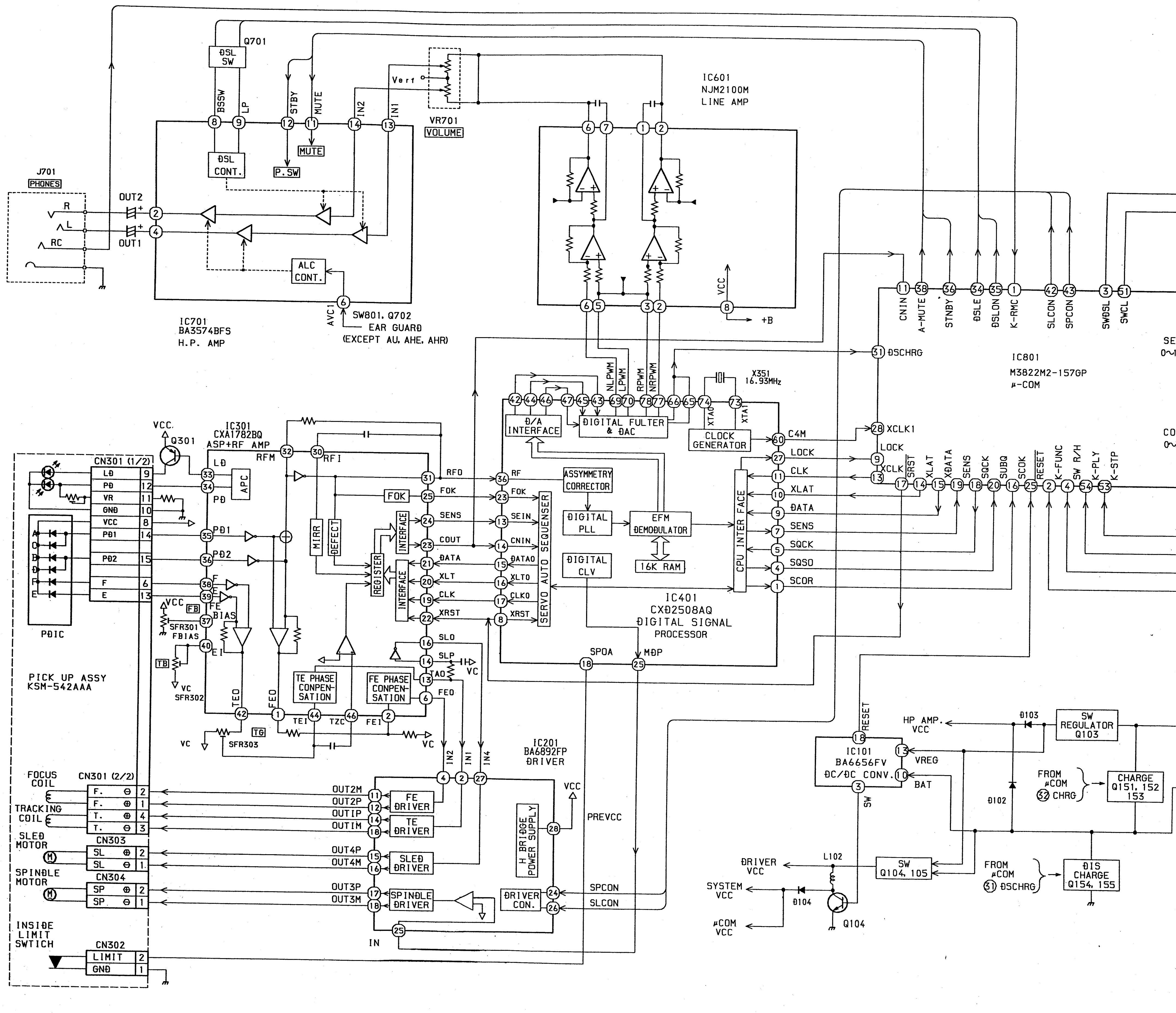
2SC3068
2SC2060R
2SA1286
2SA934
2SA1435

BLOCK DIAGRAM – 1 (XP-250/255/230/EX200, XP-350/355/S3)

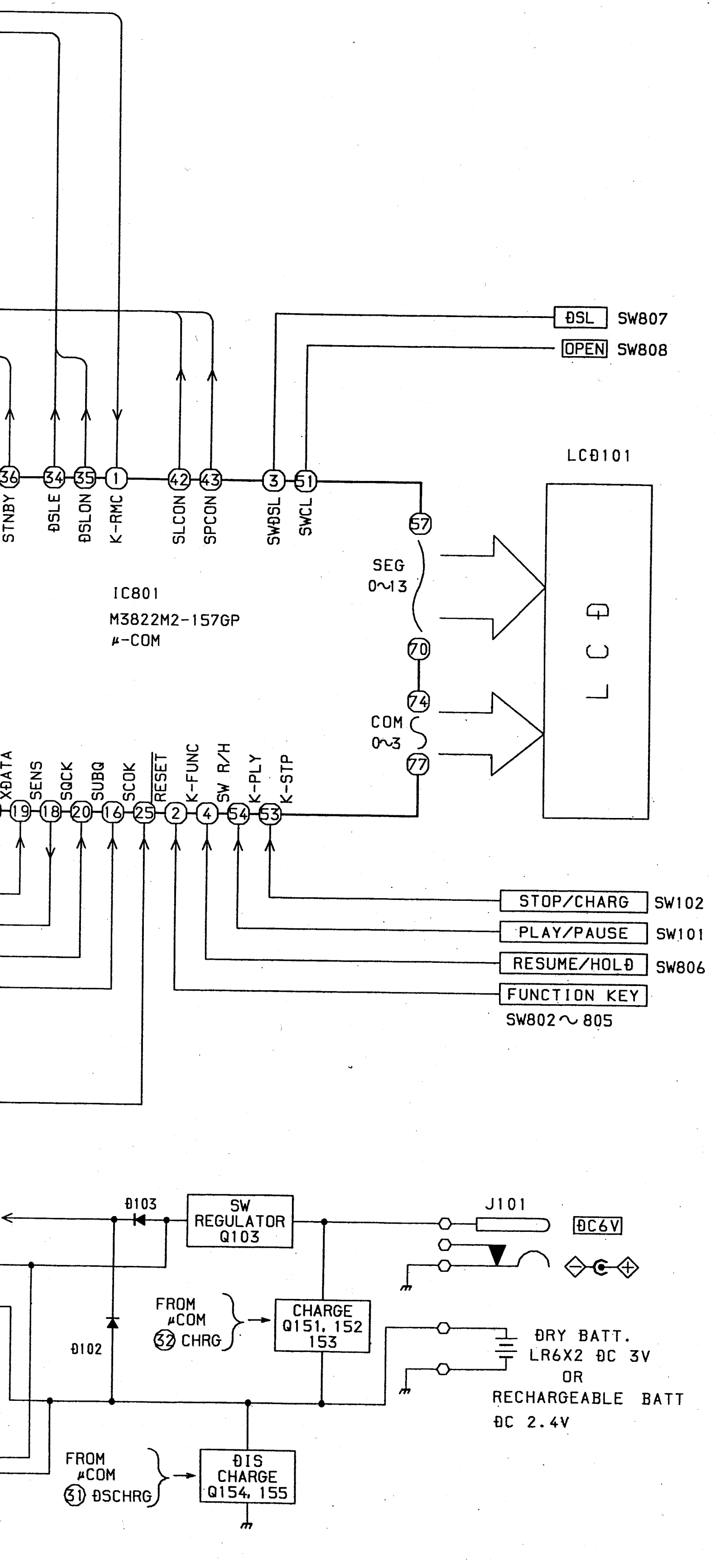


Q701
DSL SW
BSSW
LP
BEEP
STBY
MUTE
IN2
IN1
BEEP
DSL CONT.
P.SW
MUTE
Verf
VR701 VOLUME
Q703 MUTE
IC701 BH3563FV LINE AMP
BIASIN
Vref
OUT1
FIL1B
FIL2B
OUT2
MUTE
MUT
IN1-
IN1+
IN2+
IN2-
J701 PHONES
RC
L
OUT2
OUT1
ALC CONT.
AVC1
SW801, Q702 EAR GUARD
IC702 BA3574BFS H.P. AMP
NLPWM
LPWM
RPWM
NRPWM
X351 16.93MHz
D/A INTERFACE
DIGITAL FULTER & DAC
XTAO
XTAI
CLOCK GENERATOR
C4M
LOCK
CLK
XLAT
DATA
SENS
SQCK
SQSO
SCOR
ASSYMMETRY CORRECTOR
DIGITAL PLL
EFM DEMODULATOR
16K RAM
DIGITAL CLV
SERVO AUTO SEQUENSER
CPU INTER FACE
IC351 CXD2508AQ DIGITAL SIGNAL PROCESSOR
SPOA
MDP
VCC
Q301
IC301 CXA1782BQ ASP+RF AMP
RFM
RFI
LD
PD
APC
PD1
PD2
F
E
FE BIAS
EI
FB
SFR301 FBIAS
TB
SFR302
VC
RFO
FOK
SENS
COUT
DATA
XLT
CLK
XRST
RF
SEIN
CNIN
DATAO
XLTO
CLKO
MIRR
DEFECT
REGISTER
INTERFACE
SLO
SLP
TAO
FEO
TEO
TEI
TZC
FEI
TE PHASE CONPENSATION
FE PHASE CONPENSATION
TG
SFR303
CN301 (1/2)
LD
PD
VR
GND
VCC
PD1
PD2
F
E
A
C
B
D
F
E
PICK UP ASSY KSM-542AAA OR KSM-542CAA
FOCUS COIL
TRACKING COIL
SLED MOTOR
SPINDLE MOTOR
INSIDE LIMIT SWTICH
CN301 (2/2)
F. ⊖
F. ⊕
T. ⊕
T. ⊖
CN303
SL ⊕
SL ⊖
CN304
SP ⊕
SP ⊖
CN302
LIMIT
GND
FEIN
TEIN
SLIN
IC201 BH6505K DRIVER
SYSTEM VCC
FO⊕
FO⊖
TO⊕
TO⊖
SL⊕
SL⊖
SP⊕
SP⊖
FE DRIVER
TE DRIVER
SLED DRIVER
SPINDLE DRIVER
H BRIDGE POWER SUPPLY
DRIVER CON.
LG
VG
D201
SPCON
SLCON
SPIN
OP OUT
OP -
IC801 M38223M-6HC µ-COM
CNIN
BEEP
STNBY
B-MUTE
DSLE
DSLON
K-RMC
SLCON
SPCON
SWDSL
SWCL
A-MUTE
ZM IN
XCLK1
LOCK
XCLK
SRST
XLAT
XDATA
SENS
SQCK
SUBQ
SCOR
RESET
K-FUNC
SW R/H
K-PLY
K-STP
B-EMP
B-MID
B-FUL
SEG 0~13
COM 0~3
LCD101
L C D
LED801 ~ LED803
L E D
DSL SW802
OPEN/CLOSE SW811
STOP/CHARG SW102
PLAY/PAUSE SW101
RESUME/HOLD SW803
FUNCTION KEY SW804~806, 809, 810
RESET
IC101 BA6656FV DC/DC CONV.
HP AMP. VCC
VREG
BAT
SW
D103
SW REGULATOR Q103
J101
DC6V
FROM µCOM 32 CHRG
CHARGE Q151, 152 153
D102
DRY BATT: LR6X2 DC 3V OR RECHARGEABLE BATT DC 2.4V
DRIVER VCC
L102
SW Q104, 105
FROM µCOM 31 DSCHRG
DIS CHARGE Q154, 155
SYSTEM VCC
D104
Q102
µCOM VCC

BLOCK DIAGRAM - 2 (XP-220/S2/AP1)



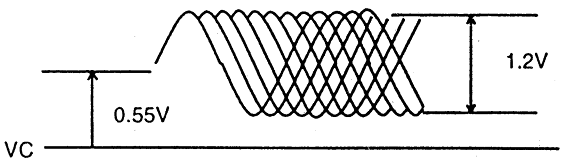
J701
PHONES
R
L
RC
OUT2
OUT1
Q701
ƉSL SW
ƉSL CONT.
BSSW
LP
STBY
MUTE
P.SW
IN2
IN1
Verf
VR701
VOLUME
ALC CONT.
AVC1
SW801, Q702
EAR GUARĐ
(EXCEPT AU, AHE, AHR)
IC701
BA3574BFS
H.P. AMP
IC601
NJM2100M
LINE AMP
VCC
+B
NLPWM
LPWM
RPWM
NRPWM
X351
16.93MHz
Đ/A INTERFACE
ĐIGITAL FULTER & ĐAC
CLOCK GENERATOR
XTAO
XTAI
C4M
LOCK
CLK
XLAT
ĐATA
SENS
SQCK
SQSO
SCOR
ASSYMMETRY CORRECTOR
ĐIGITAL PLL
EFM ĐEMOĐULATOR
16K RAM
ĐIGITAL CLV
CPU INTER FACE
SERVO AUTO SEQUENSER
IC401
CXĐ2508AQ
ĐIGITAL SIGNAL
PROCESSOR
SPOA
MĐP
RF
FOK
SEIN
CNIN
ĐATAO
XLTO
CLKO
XRST
IC301
CXA1782BQ
ASP+RF AMP
VCC
Q301
LĐ
PĐ
APC
RFM
RFI
RFO
PĐ1
PĐ2
MIRR
ĐEFECT
REGISTER
INTERFACE
FOK
SENS
COUT
XLT
SLO
SLP
TAO
FEO
TEO
TEI
TZC
FEI
TE PHASE CONPEN-SATION
FE PHASE CONPEN-SATION
FB
FBIAS
SFR301
SFR302
SFR303
TB
TG
VC
EI
CN301 (1/2)
VR
GNĐ
VCC
F
E
PĐIC
PICK UP ASSY
KSM-542AAA
FOCUS COIL
TRACKING COIL
SLEĐ MOTOR
SPINĐLE MOTOR
INSIĐE LIMIT SWTICH
CN301 (2/2)
CN303
CN304
CN302
LIMIT
GNĐ
IC201
BA6892FP
ĐRIVER
OUT2M
OUT2P
OUT1P
OUT1M
OUT4P
OUT4M
OUT3P
OUT3M
FE ĐRIVER
TE ĐRIVER
SLEĐ ĐRIVER
SPINĐLE ĐRIVER
H BRIĐGE POWER SUPPLY
ĐRIVER CON.
PREVCC
SPCON
SLCON
IN
IC801
M3822M2-157GP
µ-COM
CNIN
A-MUTE
STNBY
ĐSLE
ĐSLON
K-RMC
SWĐSL
SWCL
ĐSCHRG
XCLK1
SRST
XĐATA
SUBQ
SCOK
RESET
K-FUNC
SW R/H
K-PLY
K-STP
HP AMP. VCC
VREG
BAT
IC101
BA6656FV
ĐC/ĐC CONV.
SW
Đ103
SW REGULATOR Q103
FROM µCOM (32) CHRG
CHARGE Q151, 152 153
Đ102
FROM µCOM (31) ĐSCHRG
ĐIS CHARGE Q154, 155
SW Q104, 105
L102
ĐRIVER VCC
SYSTEM VCC
µCOM VCC
Đ104
Q104


STNBY
ĐSLE
ĐSLON
K-RMC
SLCON
SPCON
SWĐSL
SWCL
ĐSL SW807
OPEN SW808
LCĐ101
L C Đ
SEG 0~13
COM 0~3
IC801
M3822M2-157GP
μ-COM
XĐATA
SENS
SQCK
SUBQ
SCOK
RESET
K-FUNC
SW R/H
K-PLY
K-STP
STOP/CHARG SW102
PLAY/PAUSE SW101
RESUME/HOLĐ SW806
FUNCTION KEY
SW802～805
Đ103
SW REGULATOR Q103
J101
ĐC6V
FROM μCOM ㉜ CHRG
CHARGE Q151, 152 153
Đ102
ĐRY BATT. LR6X2 ĐC 3V OR RECHARGEABLE BATT ĐC 2.4V
FROM μCOM ㉛ ĐSCHRG
ĐIS CHARGE Q154, 155

WAVE FORM - 1 (XP-220/S2/AP1)

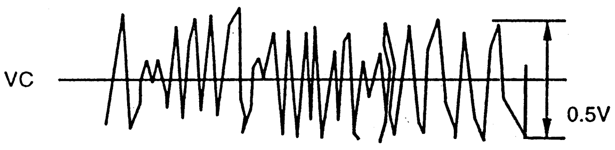
① IC301 Pin ㉛

VOLT/DIV : 0.5V
TIME/DIV : 1μs



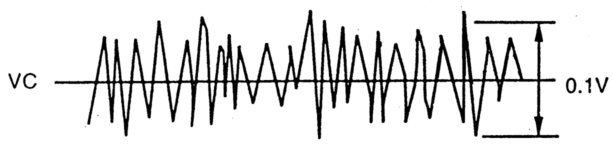
② IC301 Pin ㊷

VOLT/DIV : 0.2V
TIME/DIV : 50μs



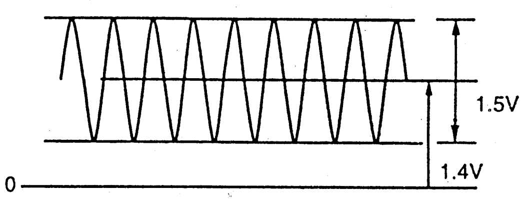
③ IC301 Pin ①

VOLT/DIV : 0.1V
TIME/DIV : 2 ms



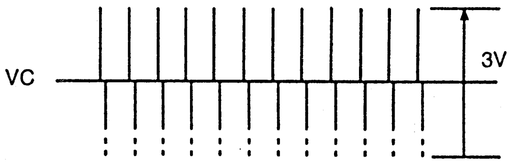
④ IC401 Pin ㊹

VOLT/DIV : 1V
TIME/DIV : 50 ms
f = 16.93MHz

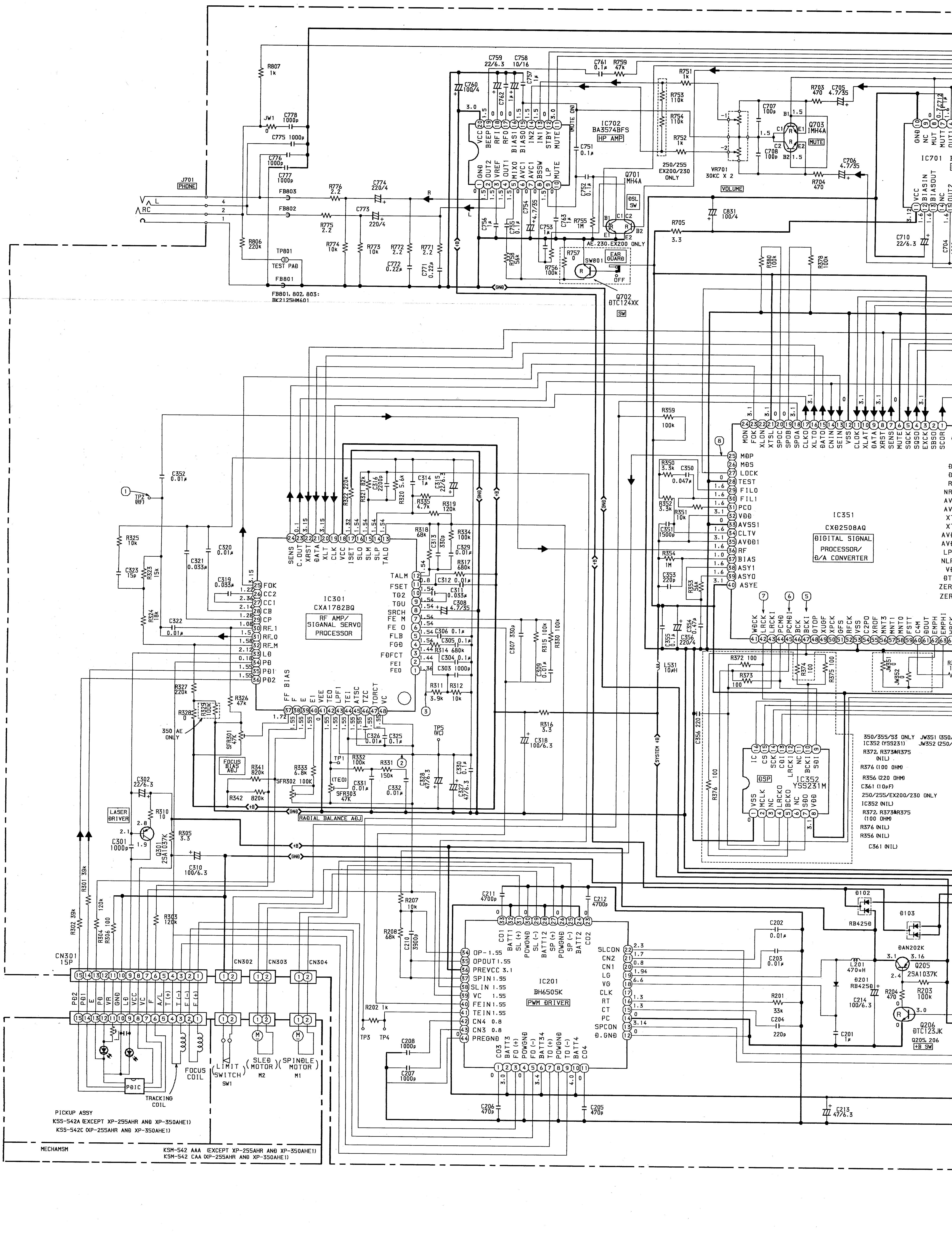


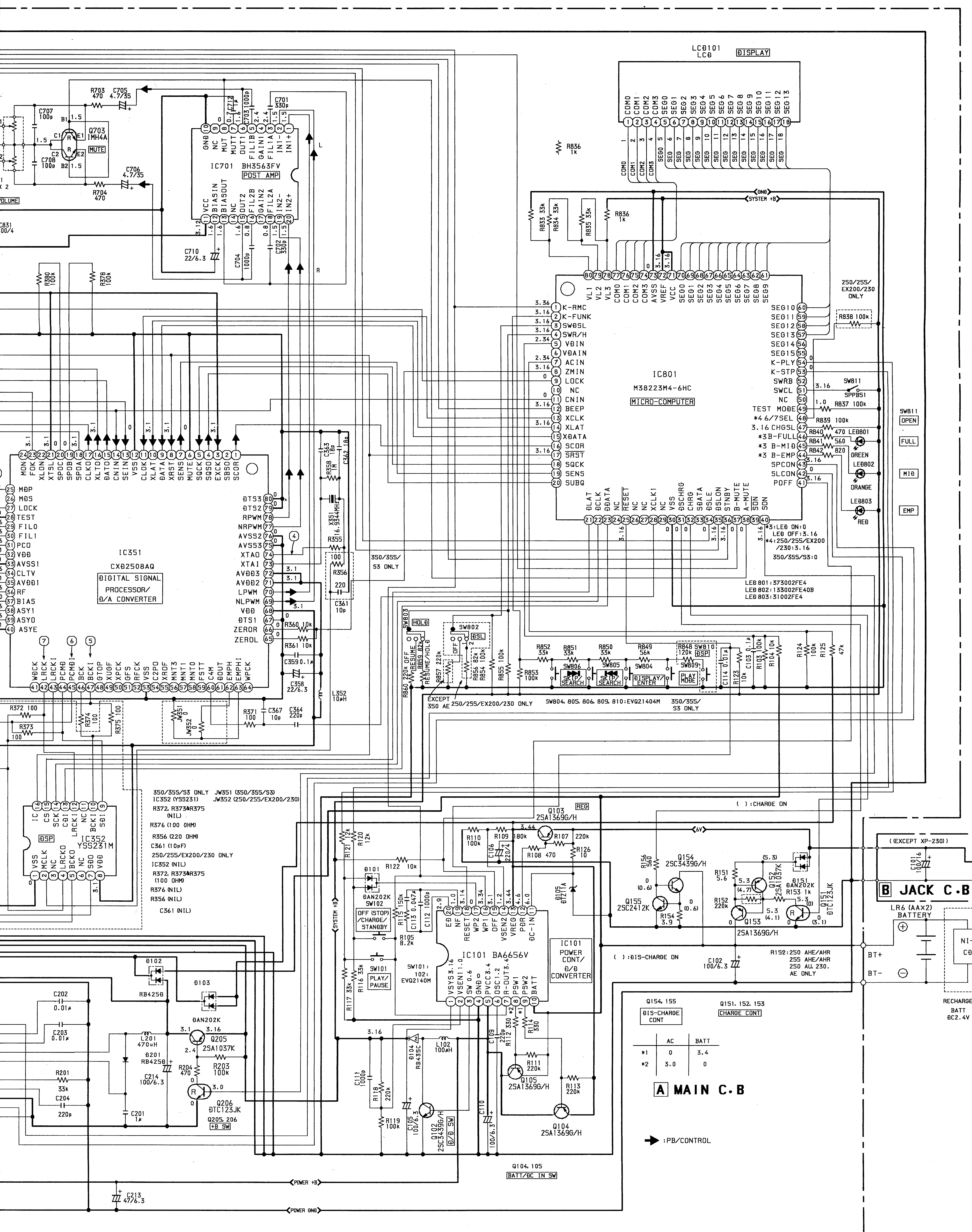
⑤ IC401 Pin ㉕

VOLT/DIV : 1V
TIME/DIV : 5 μs



SCHEMATIC DIAGRAM – 1 (XP-250/255/230/EX200, XP-350/355/S3)


J701
PHONE
L
RC
R807 1k
JW1
C778 1000p
C775 1000p
C776 1000p
C777 1000p
FB803
FB802
FB801
R776 2.2
C774 220/4
R775 2.2
C773 220/4
R806 220k
TP801
TEST PAD
R774 10k
R773 10k
R772 2.2
R771 2.2
C772 0.22μ
C771 0.22μ
FB801, 802, 803: BK2125HM601
C759 22/6.3
C758 10/16
C760 100/4
C762
C757
C761 0.1μ
R759 47k
IC702
BA3574BFS
HP AMP
VCC
BEEP
RFI
RFO
BIAS1
BIAS0
IN2
IN1
STBY
MUTE
GND
OUT2
VREF
OUT1
MIXO
AVC1
BSSW
LP
C751 0.1μ
C752 0.1μ
C756 1μ
C755 0.1μ
C754 4.7/35
C753 1μ
C763 0.1μ
R755 1M
Q701
IMH4A
DSL SW
AE.230.EX200 ONLY
R758 56k
R757 0
R756 100k
SW801
EAR GUARD
OFF
Q702
DTC124XK
SW
R751 1k
R753 110k
R754 110k
R752 1k
250/255 EX200/230 ONLY
VR701 30KC X 2
VOLUME
C707 100p
C708 100p
Q703
IMH4A
MUTE
R703 470
C705 4.7/35
C706 4.7/35
R704 470
IC701
C831 100/4
R705 3.3
C710 22/6.3
C704
R380 100k
R378 100k
IC351
CXD2508AQ
DIGITAL SIGNAL PROCESSOR/ D/A CONVERTER
MON
FOK
XLON
XTSL
SPOC
SPOB
SPOA
CLKO
XLTO
DATO
CNIN
SEIN
VSS
CLOK
XLAT
DATA
XRST
SENS
MUTE
SQCK
SQSO
EXCK
SBSO
SCOR
MDP
MDS
LOCK
TEST
FILO
FILI
PCO
VDD
AVSS1
CLTV
AVDD1
RF
BIAS
ASY1
ASYO
ASYE
WDCK
LRCK
LRCKI
PCMD
PCMDI
BCK
BCKI
GTOP
XUGF
XPCK
GFS
RFCK
C2PO
XROF
MNT3
MNT1
MNT0
FSTT
C4M
DOUT
EMPH
R359 100k
R350 3.3k
C350 0.047μ
R352 3.3k
R351 10k
C351 1500p
R354 1M
C353 220p
R353 56k
C355 0.1μ
C354 220/4
L531 10μH
C356 220
R372 100
R373 100
R374 100
R375 100
JW351
JW352
IC352
YSS231M
DSP
CS
SCK
LRCKI
NC
BCKI
SDI
VSS
MCLK
NC
LRCKO
BCKO
NC
SDO
VDD
R376 100
SYSTEM +B
350/355/S3 ONLY JW351 (350/
IC352 (YSS231) JW352 (250/
R372, R373&R375 (NIL)
R376 (100 OHM)
R356 (220 OHM)
C361 (10pF)
250/255/EX200/230 ONLY
IC352 (NIL)
R372, R373&R375 (100 OHM)
R376 (NIL)
R356 (NIL)
C361 (NIL)
IC301
CXA1782BQ
RF AMP/ SIGANAL SERVO PROCESSOR
SENS
C.OUT
XRST
DATA
XLT
CLK
VCC
ISET
SLO
SLM
SLP
TALO
TALM
FSET
TG2
TGU
SRCH
FE M
FE O
FLB
FGD
FDFCT
FEI
FEO
FOK
CC2
CC1
CB
CP
RF I
RF O
RF M
LD
PD
PD1
PD2
FF BIAS
F
E
EI
VEE
TEO
LPF1
TEI
ATSC
TZC
TDRCT
VC
C352 0.01μ
TP2 (RF)
R325 10k
C323 15p
R323 15k
R324 18k
C322 0.01μ
C321 0.033μ
C320 0.01μ
C319 0.033μ
R322 220k
R321 82k
C316 2200p
R320 5.6k
C314 1μ
C315 22/6.3
R335 4.7k
R319 120k
R318 68k
R334 100k
C313 330p
C329 0.01μ
R317 680k
C312 0.01μ
C311 0.033μ
C308 4.7/35
C306 0.1μ
C305 0.1μ
R314 680k
C304 0.1μ
C303 1000p
C307 330p
C309 0.01μ
R315 100k
R330 100k
R311 3.9k
R312 10k
R316 3.3
C318 100/6.3
TP5 (VC)
C330 0.1μ
C327 47/6.3
C328 47/6.3
C326 0.01μ
C325 0.1μ
TP1
R332 100k
R331 150k
(TEO)
C331 0.01μ
C332 0.01μ
SFR303 47K
SFR302 100K
R333 6.8k
R341 820k
R342 820k
FOCUS BIAS ADJ
RADIAL BALANCE ADJ
R327 220k
R326 47k
R328 0
R329 100K
350 AE ONLY
SFR301 4.7K
LASER DRIVER
C302 22/6.3
R310 10
Q301 2SA1037K
C301 1000p
R305 3.3
C310 100/6.3
R301 39k
R302 39k
R304 120k
R306 100
R303 120k
CN301 15P
CN302
CN303
CN304
PD2
PD1
E
PD
VR
GND
LD
VCC
F
A/L
T(+)
T(-)
F(-)
F(+)
PDIC
FOCUS COIL
TRACKING COIL
LIMIT SWITCH
SW1
SLED MOTOR
M2
SPINDLE MOTOR
M1
PICKUP ASSY
KSS-542A (EXCEPT XP-255AHR AND XP-350AHE1)
KSS-542C (XP-255AHR AND XP-350AHE1)
MECHAMSM
KSM-542 AAA (EXCEPT XP-255AHR AND XP-350AHE1)
KSM-542 CAA (XP-255AHR AND XP-350AHE1)
R207 10k
R208 68k
C210 3900p
R202 1k
TP3
TP4
C208 1000p
C207 1000p
C211 4700p
C212 4700p
IC201
BH6505K
PWM DRIVER
CO1
BATT1
SL(+)
POWGND
SL(-)
BATT12
SP(+)
POWGND
SP(-)
BATT2
CO2
OP
OPOUT1
PREVCC
SPIN1
SLIN
VC
FEIN1
TEIN1
CN4
CN3
PREGND
SLCON
CN2
CN1
LG
VG
CLK
RT
CT
PC
SPCON
D.GND
CO3
BATT3
FO(+)
POWGND
FO(-)
BATT34
TO(+)
POWGND
TO(-)
BATT4
CO4
C202 0.01μ
C203 0.01μ
R201 33k
C204 220p
C206 470p
C205 470p
C201 1μ
C213 47/6.3
D102
D103
RB425D
DAN202K
L201 470μH
D201 RB425D
C214 100/6.3
R204 470
Q205 2SA1037K
R203 100k
Q206 DTC123JK
Q205, 206 +B SW
+B
GND

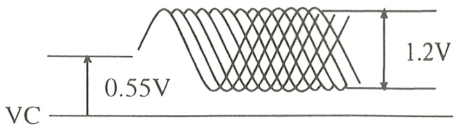


LC0101
LCD
DISPLAY
IC701 BH3563FV
POST AMP
Q703 IMH4A
MUTE
VOLUME
IC801
M38223M4-6HC
MICRO-COMPUTER
IC351
CXD2508AQ
DIGITAL SIGNAL PROCESSOR/ D/A CONVERTER
IC352 YSS231M
DSP
X351 16.9344MHz
350/355/S3 ONLY
250/255/EX200/230 ONLY
SW811 OPEN
FULL
MID
EMP
LED801 GREEN
LED802 ORANGE
LED803 RED
*3:LED ON:0
LED OFF:3.16
*4:250/255/EX200/230:3.16
350/355/S3:0
LED801:373002FE4
LED802:133002FE40B
LED803:31002FE4
SW803 HOLD
SW802 DSL
RESUME/HOLD
SW806 SKIP/SEARCH
SW805 SKIP/SEARCH
SW804 DISPLAY/ENTER
SW809 PLAY MODE
SW810 DSP
EXCEPT 350 AE
SW804, 805, 806, 809, 810:EVQ21404M
350/355/S3 ONLY
350/355/S3 ONLY JW351 (350/355/S3)
IC352 (YSS231) JW352 (250/255/EX200/230)
R372, R373&R375 (NIL)
R376 (100 OHM)
R356 (220 OHM)
C361 (10pF)
250/255/EX200/230 ONLY
IC352 (NIL)
R372, R373&R375 (100 OHM)
R376 (NIL)
R356 (NIL)
C361 (NIL)
Q103 2SA1369G/H
REG
IC101 BA6656V
IC101 POWER CONT/ D/D CONVERTER
SW102 OFF (STOP)/CHARGE/STANDBY
SW101 PLAY/PAUSE
SW101: 102: EVQ2140M
D101 DAN202K
D102 RB425D
D103 DAN202K
Q205 2SA1037K
Q206 DTC123JK
Q205, 206 +B SW
Q102 2SC3439G/H D/D SW
Q105 2SA1369G/H
Q104 2SA1369G/H
Q104, 105 BATT/DC IN SW
( ) :CHARGE ON
( ) :DIS-CHARGE ON
Q154 2SC3439G/H
Q155 2SC2412K
Q152 2SA1037K
Q153 2SA1369G/H
Q151 DTC123JK
D151 DAN202K
R152:250 AHE/AHR 255 AHE/AHR 250 AU, 230, AE ONLY
Q154, 155 DIS-CHARGE CONT
Q151, 152, 153 CHARGE CONT
J101 DC JACK DC6V
(EXCEPT XP-230)
B JACK C.B
LR6 (AAX2) BATTERY
NI-CD
RECHARGEABLE BATT DC2.4V
BT+
BT-
A MAIN C.B
:PB/CONTROL
POWER +B
POWER GND
SYSTEM +B

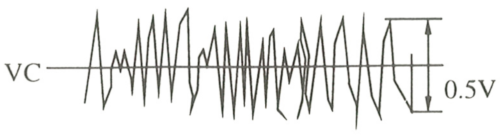
	AC	BATT
*1	0	3.4
*2	3.0	0

WAVE FORM - 2 (XP-250/255/230/EX200, XP-350/355/S3)

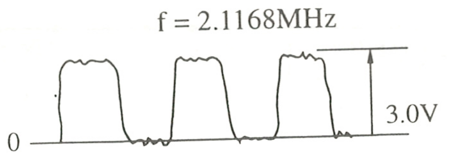
① IC301 Pin 31 VOLT/DIV: 0.5V
TIME/DIV: 1uS



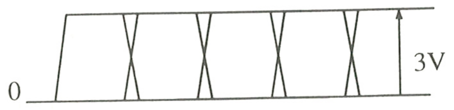
② IC301 Pin 42 VOLT/DIV: 0.2V
TIME/DIV: 50uS



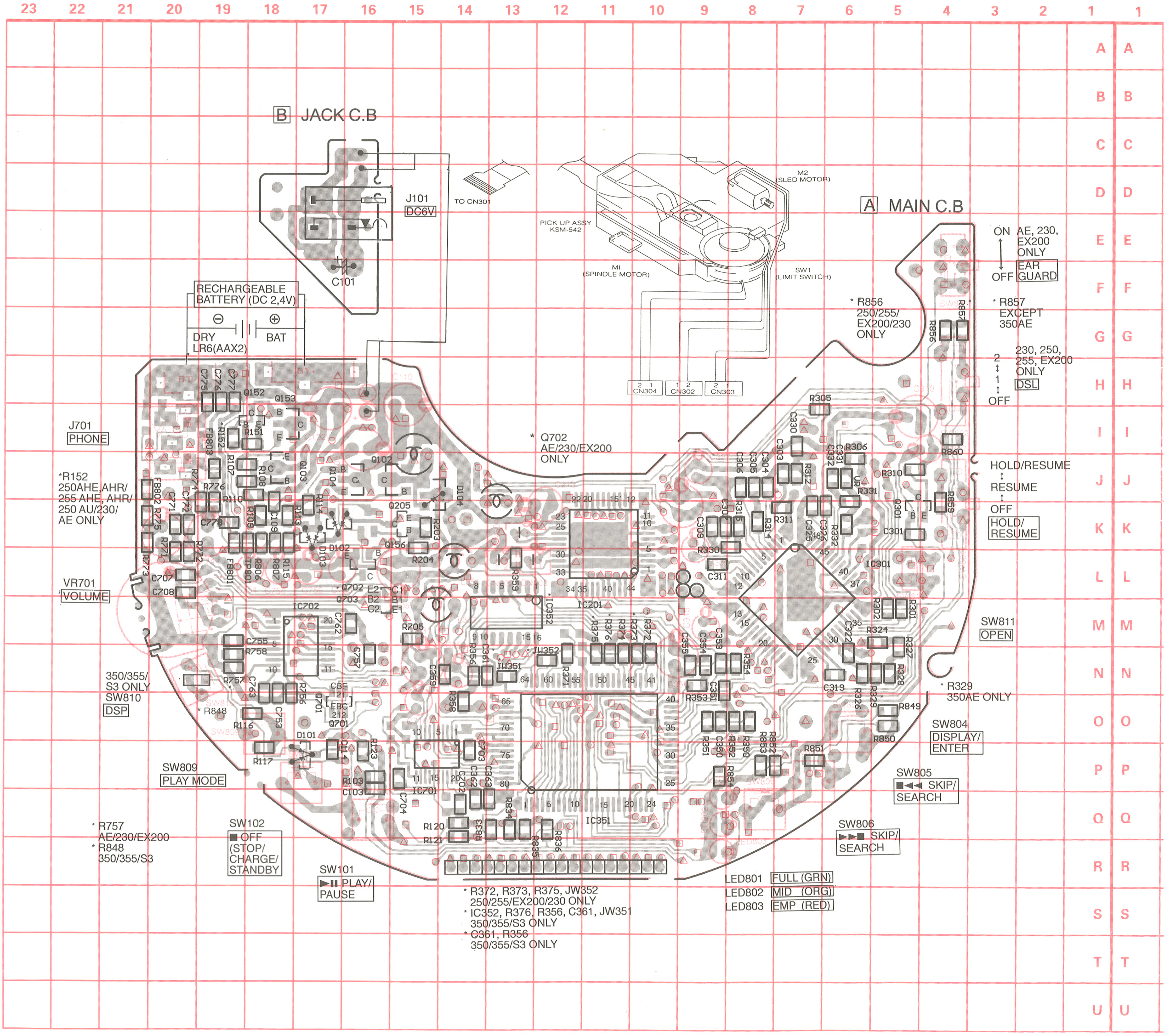
⑤ IC351 Pin 46 f = 2.1168MHz
47 f = 2.8MHz
VOLT/DIV: 2V
TIME/DIV: 0.2uS



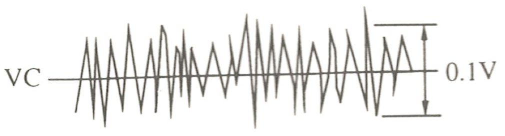
⑥ IC351 Pin 44 45 VOLT/DIV: 2V
TIME/DIV: 0.2uS



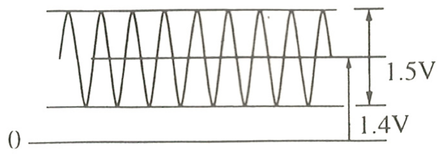
WIRING – 1 (XP-250/255/230/EX200, XP-350/355/S3)


23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 1
A B C D E F G H I J K L M N O P Q R S T U
B JACK C.B
J101
DC6V
C101
TO CN301
PICK UP ASSY
KSM-542
M2
(SLED MOTOR)
MI
(SPINDLE MOTOR)
SW1
(LIMIT SWITCH)
CN304 CN302 CN303
A MAIN C.B
RECHARGEABLE
BATTERY (DC 2,4V)
⊖ ⊕
DRY
LR6(AAX2)
BAT
ON AE, 230,
EX200
ONLY
EAR
OFF GUARD
* R856
250/255/
EX200/230
ONLY
* R857
EXCEPT
350AE
230, 250,
255, EX200
ONLY
2
1
DSL
OFF
J701
PHONE
*R152
250AHE,AHR/
255 AHE, AHR/
250 AU/230/
AE ONLY
* Q702
AE/230/EX200
ONLY
HOLD/RESUME
RESUME
OFF
HOLD/
RESUME
VR701
VOLUME
IC301
IC201
IC352
IC351
IC702
IC701
SW811
OPEN
350/355/
S3 ONLY
SW810
DSP
* R848
* R329
350AE ONLY
SW804
DISPLAY/
ENTER
SW809
PLAY MODE
SW805
◼◀◀ SKIP/
SEARCH
* R757
AE/230/EX200
* R848
350/355/S3
SW102
◼ OFF
(STOP/
CHARGE/
STANDBY)
SW101
▶II PLAY/
PAUSE
SW806
▶▶◼ SKIP/
SEARCH
LED801 FULL (GRN)
LED802 MID (ORG)
LED803 EMP (RED)
* R372, R373, R375, JW352
250/255/EX200/230 ONLY
* IC352, R376, R356, C361, JW351
350/355/S3 ONLY
* C361, R356
350/355/S3 ONLY

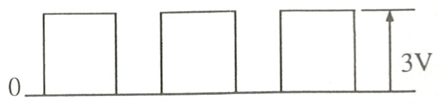
③ IC301 Pin 1 VOLT/DIV: 0.1V
TIME/DIV: 2mS



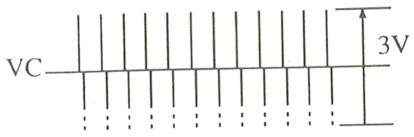
④ IC351 Pin 74 VOLT/DIV: 1V
TIME/DIV: 50mS

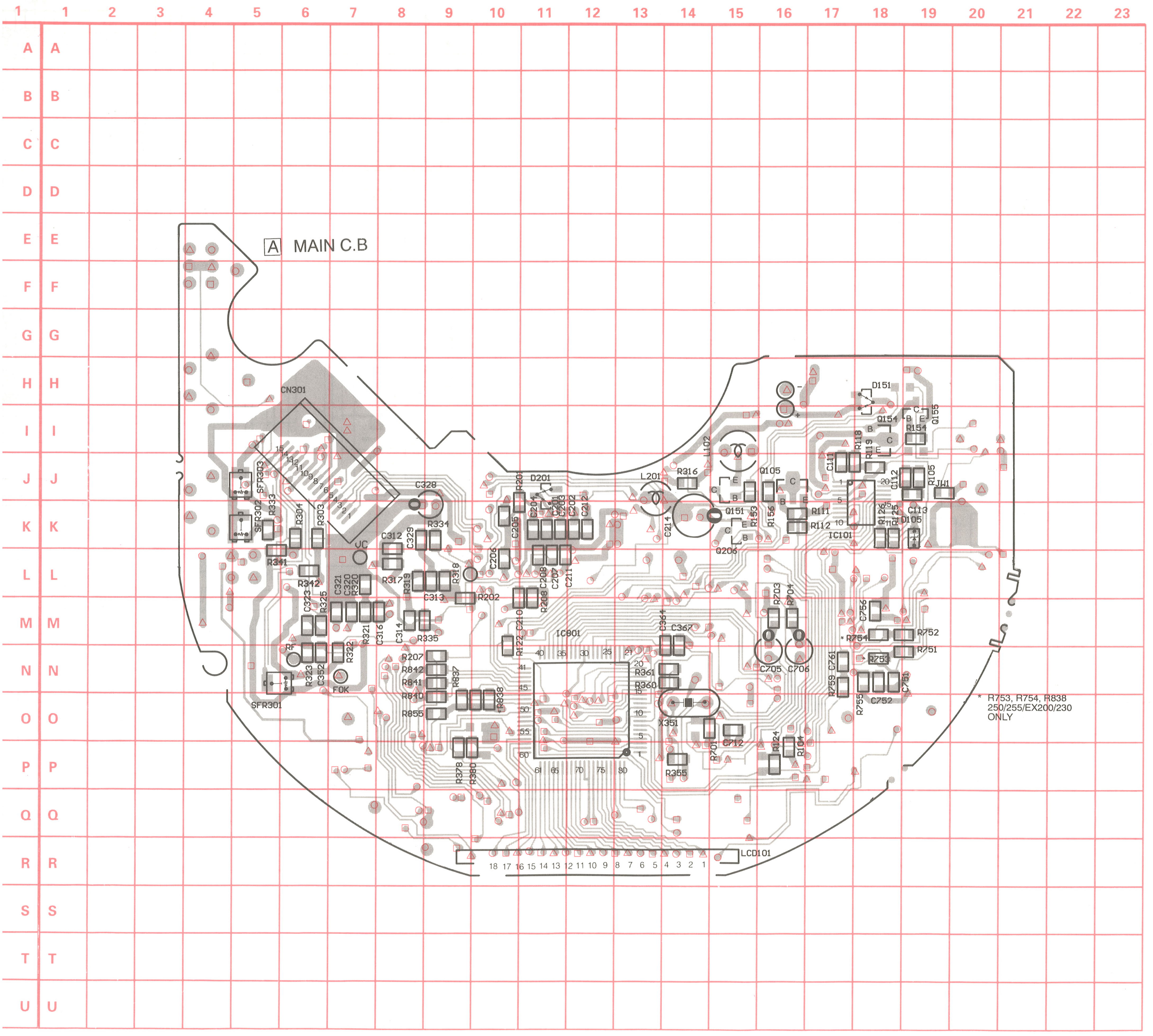


⑦ IC351 Pin 42 VOLT/DIV: 2V
TIME/DIV: 5uS



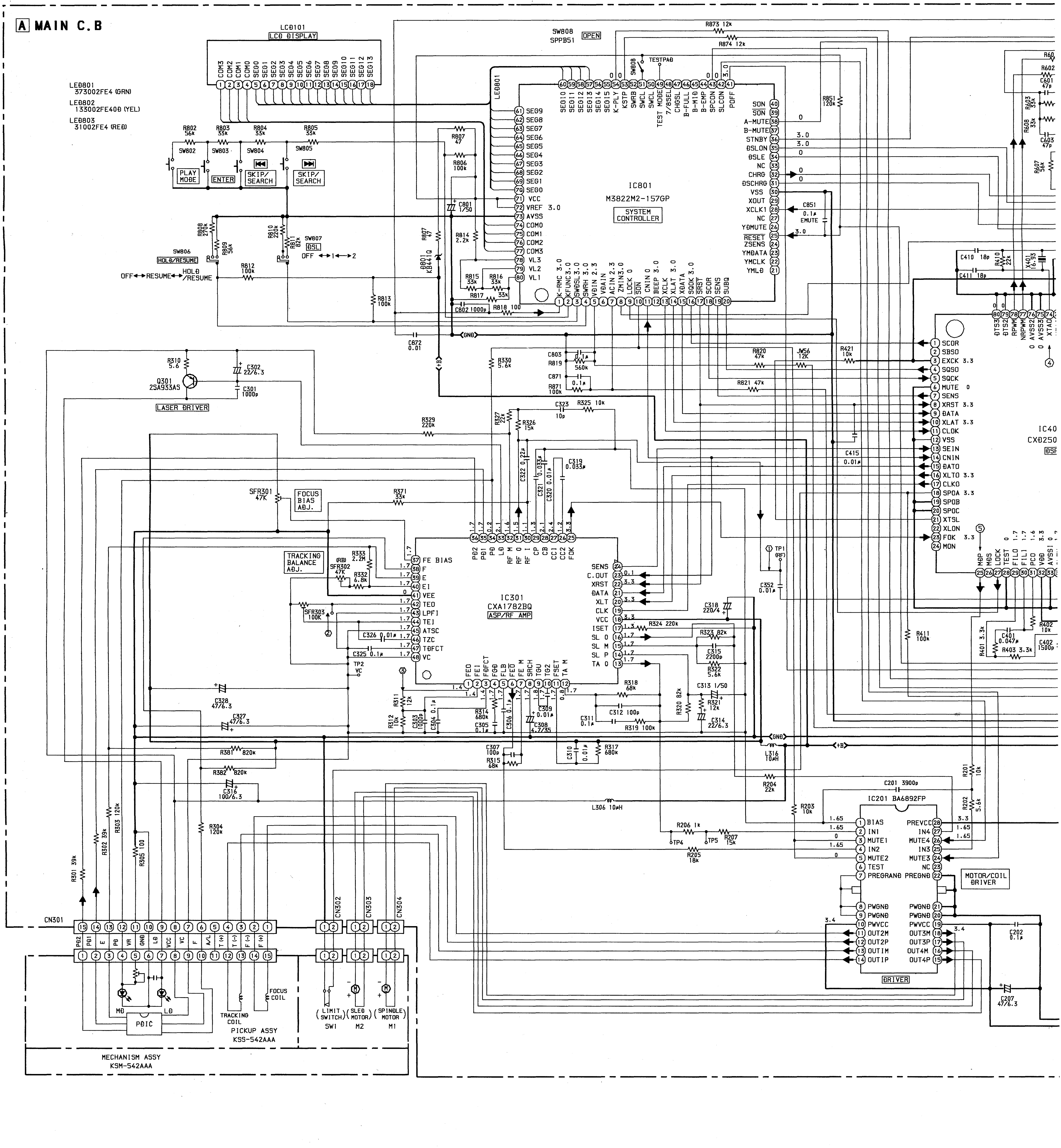
⑧ IC351 Pin 25 VOLT/DIV: 1V
TIME/DIV: 5uS

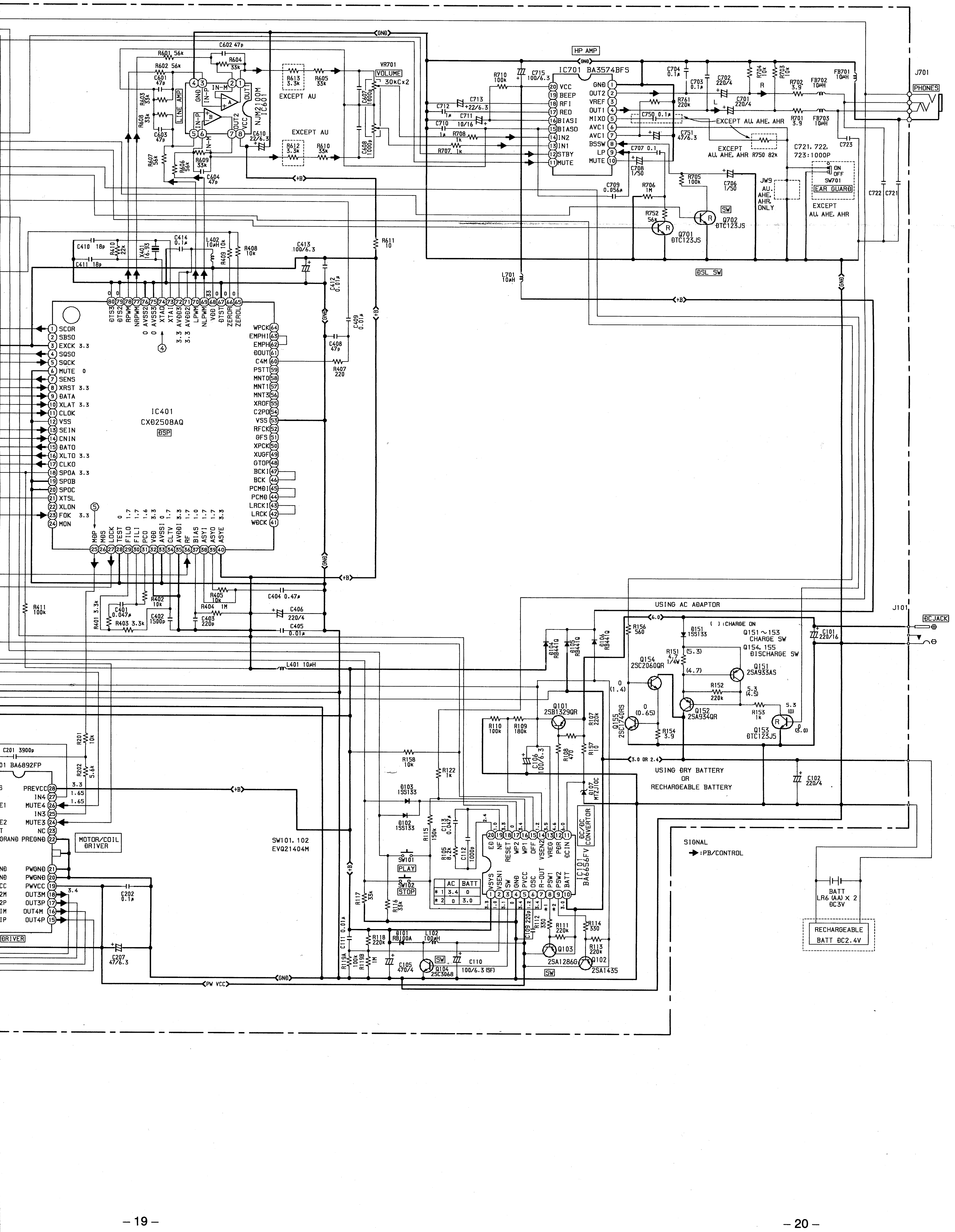



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
A B C D E F G H I J K L M N O P Q R S T U
A MAIN C.B
CN301
SFR303
SFR302
SFR301
R333
R304
R303
R341
R342
C323
R325
C321
C320
R320
R323
C352
R322
R321
C316
C314
RF
FOK
VC
C328
C312
C329
R334
R317
R319
C313
R318
R335
R207
R842
R841
R840
R855
R837
R838
R378
R380
R202
R201
D201
C205
C206
C204
C201
C203
C202
C212
C208
R208
C207
C211
C210
R122
IC801
L201
C214
R316
L102
Q105
Q151
Q206
R153
R156
R111
R112
IC101
C111
R118
R119
D151
Q154
R154
Q155
C112
R105
JW1
R126
R125
C113
D105
C364
C367
R361
R360
X351
R355
R701
C712
R703
R704
C705
C706
R124
R104
C756
R754
R752
R751
R753
C761
R759
R755
C752
C751
LCD101
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

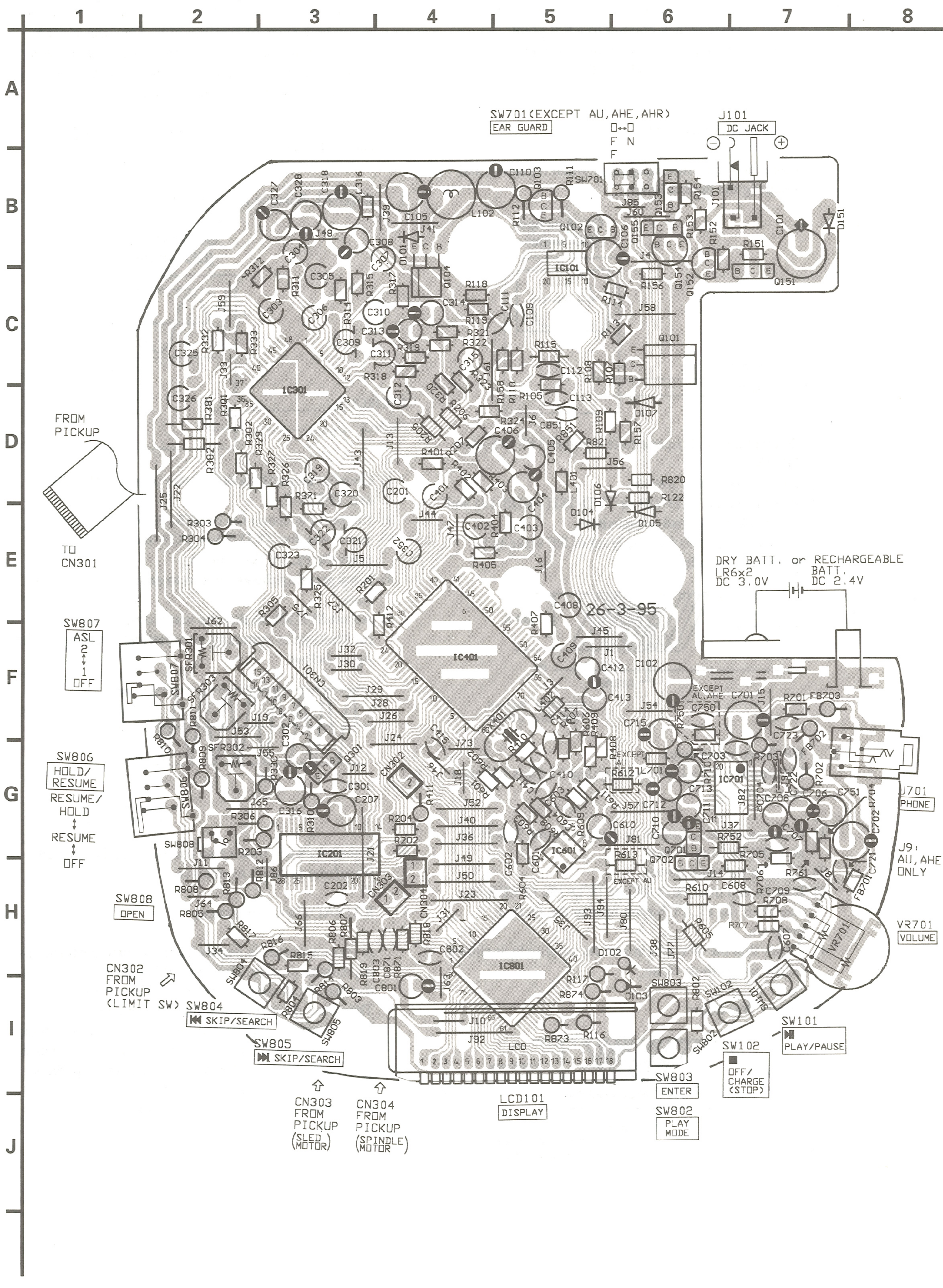
R753, R754, R838
250/255/EX200/230
ONLY

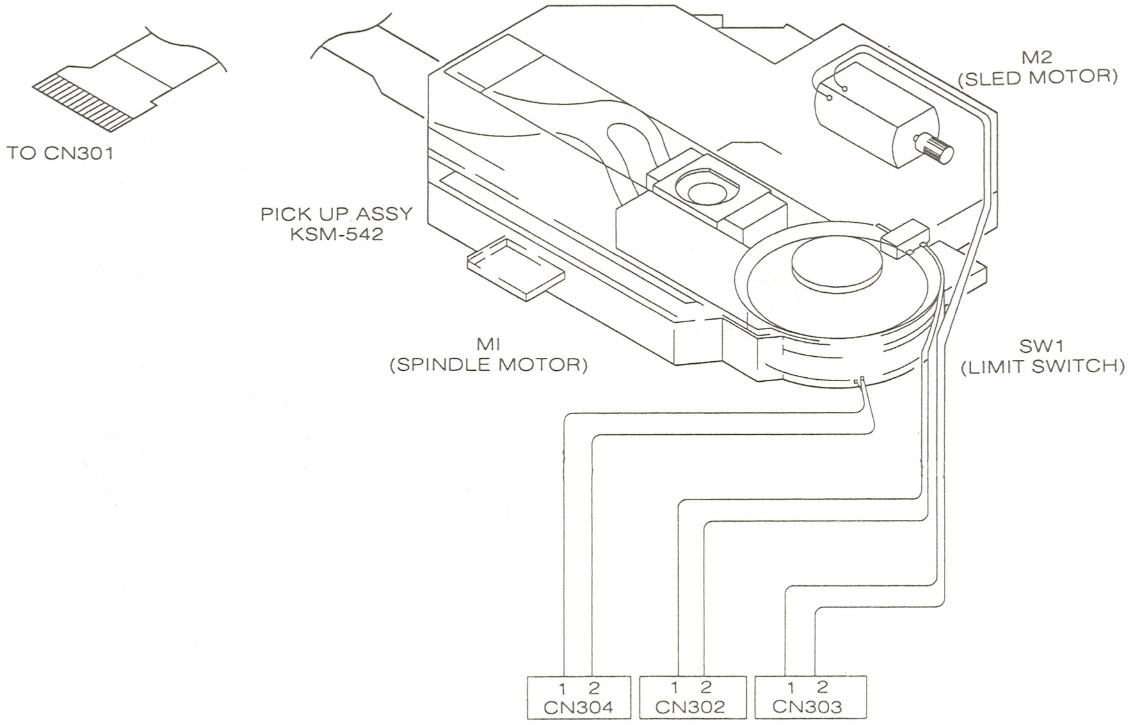
SCHEMATIC DIAGRAM – 2 (XP-220/S2/AP1)


A MAIN C.B
LCD101
LCD DISPLAY
LED801 373002FE4 (GRN)
LED802 133002FE400 (YEL)
LED803 31002FE4 (RED)
SW802 PLAY MODE
SW803 ENTER
SW804 SKIP/SEARCH
SW805 SKIP/SEARCH
SW806 HOLD/RESUME
OFF←→RESUME←→HOLD/RESUME
SW807 DSL
OFF ←→1←→2
SW808 SPPB51 OPEN
TESTPAD
IC801
M3822M2-157GP
SYSTEM CONTROLLER
D801 KB441Q
C801 1/50
C851 0.1μ EMUTE
Q301 2SA933AS
LASER DRIVER
SFR301 47K FOCUS BIAS ADJ.
TRACKING BALANCE ADJ.
SFR302 47K
SFR303 100K
IC301
CXA1782BQ
ASP/RF AMP
TP1 (RF)
TP2 VC
TP4
TP5
L316 10μH
L306 10μH
IC201 BA6892FP
MOTOR/COIL DRIVER
DRIVER
IC40
CXD250
CN301
CN302
CN303
CN304
PD2 PD1 E PD VR GND LD VCC VC F A/L T(+) T(-) F(-) F(+)
MD
LD
PDIC
TRACKING COIL
FOCUS COIL
PICKUP ASSY KSS-542AAA
LIMIT SWITCH SW1
SLED MOTOR M2
SPINDLE MOTOR M1
MECHANISM ASSY KSM-542AAA
(GND)
(+B)

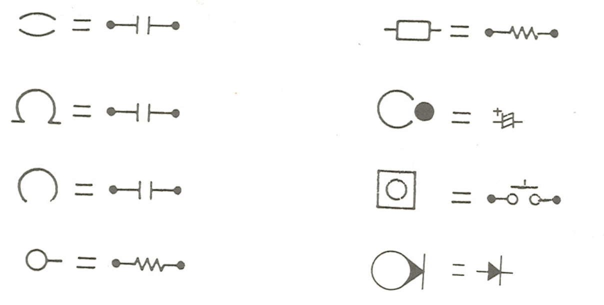

HP AMP
IC701 BA3574BFS
VCC
BEEP
RFI
REO
BIASI
BIASO
IN2
IN1
STBY
MUTE
GND
OUT2
VREF
OUT1
MIXO
AVC1
AVC1
BSSW
LP
MUTE
J701
PHONES
FB701 10μH
FB702 10μH
FB703 10μH
R702 3.9
R701 3.9
C701 220/4
C702 220/4
C703 0.1μ
C704 0.1μ
R704 10k
R703 10k
R761 220k
C750 0.1μ
EXCEPT AU, AHE, AHR
C751 47/6.3
EXCEPT AU, AHE, AHR R750 82k
C721, 722, 723:1000P
C723
C722
C721
ON
OFF
SW701
EAR GUARD
EXCEPT AU, AHE, AHR
JW9 AU, AHE, AHR ONLY
R705 100k
C706 1/50
R706 1M
C707 0.1
C708 1/50
C709 0.056μ
R752 56k
Q701 DTC123JS
Q702 DTC123JS
SW
BSL SW
L701 10μH
C715 100/6.3
R710 100k
C712 1μ
C713 22/6.3
C710 1μ
C711 10/16
R708 1k
R707 1k
VR701
VOLUME
30kC×2
C607 1000p
C608 1000p
R605 33k
R613 3.3k
EXCEPT AU
EXCEPT AU
R612 3.3k
R610 33k
C602 47p
R601 56k
R604 33k
R602 56k
C601 47p
R603 33k
R608 33k
C603 47p
LINE AMP
NJM2100M
IC601
OUT1
OUT2
VCC
GND
IN-P
IN-M
C610 22/6.3
R607 56k
R606 56k
R609 33k
C604 47p
GND
+B
R611 10
C410 18p
C411 18p
R410 22k
X401 16.93
C414 0.1μ
L402 10μH
R409 10k
R408 10k
C413 100/6.3
C412 0.01μ
C409 0.01μ
C408 47p
R407 220
IC401
CXD2508AQ
DSP
SCOR
SBSO
EXCK 3.3
SQSO
SQCK
MUTE 0
SENS
XRST 3.3
DATA
XLAT 3.3
CLOK
VSS
SEIN
CNIN
DATO
XLTO 3.3
CLKO
SPOA 3.3
SPOB
SPOC
XTSL
XLON
FOK 3.3
MON
DTS3
DTS2
RPWM
NRPWM
AVSS2
AVSS3
XTAO
XTAI
AVDD3
AVDD2
LPWM
NLPWM
VDD
DTST
ZEROR
ZEROL
WPCK
EMPHI
EMPH
DOUT
C4M
PSTT
MNT0
MNT1
MNT3
XROF
C2PO
VSS
RFCK
GFS
XPCK
XUGF
GTOP
BCKI
BCK
PCMDI
PCMD
LRCKI
LRCK
WDCK
MDP
MDS
LOCK
TEST
FILO
FILI
PCO
VDD
AVSS1
CLTV
AVDD1
RF
BIAS
ASYI
ASYO
ASYE
R411 100k
R401 3.3k
C401 0.047μ
R403 3.3k
R402 10k
C402 1500p
R405 10k
R404 1M
C403 220p
C404 0.47μ
C406 220/4
C405 0.01μ
L401 10μH
R201 10k
R202 5.6k
C201 3900p
01 BA6892FP
PREVCC
IN4
MUTE4
IN3
MUTE3
NC
GRAND PREGND
MOTOR/COIL DRIVER
PWGND
PWGND
PWVCC
OUT3M
OUT3P
OUT4M
OUT4P
DRIVER
C202 0.1μ
C207 47/6.3
PW VCC
SW101, 102
EVQ21404M
SW101
PLAY
SW102
STOP
AC
BATT
*1 3.4 0
*2 0 3.0
R117 33k
R116 33k
R119A 100k
R119B 1M
C111 0.01μ
R118 220k
D101 RB100A
L102 100μH
C105 470/4
Q104 2SC3068
C110 100/6.3 (SF)
R158 10k
R122 1k
D103 1SS133
D102 1SS133
R115 150k
C113 0.047μ
R105 8.2k
C112 1000p
IC101
BA6656FV
DC/DC CONVERTOR
ED
NF
RESET
WP2
WP1
OFF
VSEN2
VREF
PDR
DCIN
VSYS
VSEN1
SW
GND
PVCC
OSC
R-OUT
PSW1
PSW2
BATT
C109 220p
R112 330
R111 220k
Q103
2SA1286G
R114 330
R113 220k
Q102
2SA1435
SW
Q101 2SB1329QR
R110 100k
R109 180k
C106 100/6.3
R108 470
R107 220k
R157 10
D107 MTZJ10C
D104 RB441Q
D105 RB441Q
D106 RB441Q
USING AC ADAPTOR
J101
DCJACK
C101 220/16
R156 560
( ) :CHARGE ON
D151 1SS133
Q151~153 CHARGE SW
Q154, 155 DISCHARGE SW
R151 4.7 1/4W
Q154 2SC2060QR
Q151 2SA933AS
R152 220k
Q155 2SC1740RS
Q152 2SA934QR
R154 3.9
R153 1k
Q153 DTC123J5
USING DRY BATTERY OR RECHARGEABLE BATTERY
C102 220/4
SIGNAL
:PB/CONTROL
BATT LR6 (AA) × 2 DC3V
RECHARGEABLE BATT DC2.4V

WIRING (XP-220/S2/AP1)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
SW701(EXCEPT AU, AHE, AHR)
EAR GUARD
F N
J101
DC JACK
FROM PICKUP
TO CN301
IC301
IC401
IC101
IC201
IC601
IC701
IC801
Q101
Q151
26-3-95
DRY BATT. or RECHARGEABLE BATT.
LR6x2
DC 3.0V
DC 2.4V
SW807
ASL
2
1
OFF
SW806
HOLD/RESUME
RESUME/HOLD
RESUME
OFF
SW808
OPEN
CN302 FROM PICKUP (LIMIT SW)
SW804
SKIP/SEARCH
SW805
SKIP/SEARCH
CN303 FROM PICKUP (SLED MOTOR)
CN304 FROM PICKUP (SPINDLE MOTOR)
LCD101
DISPLAY
LCD
SW803
ENTER
SW802
PLAY MODE
SW102
OFF/CHARGE (STOP)
SW101
PLAY/PAUSE
VR701
VOLUME
J701
PHONE
J9: AU, AHE ONLY
EXCEPT AU, AHE
EXCEPT AU

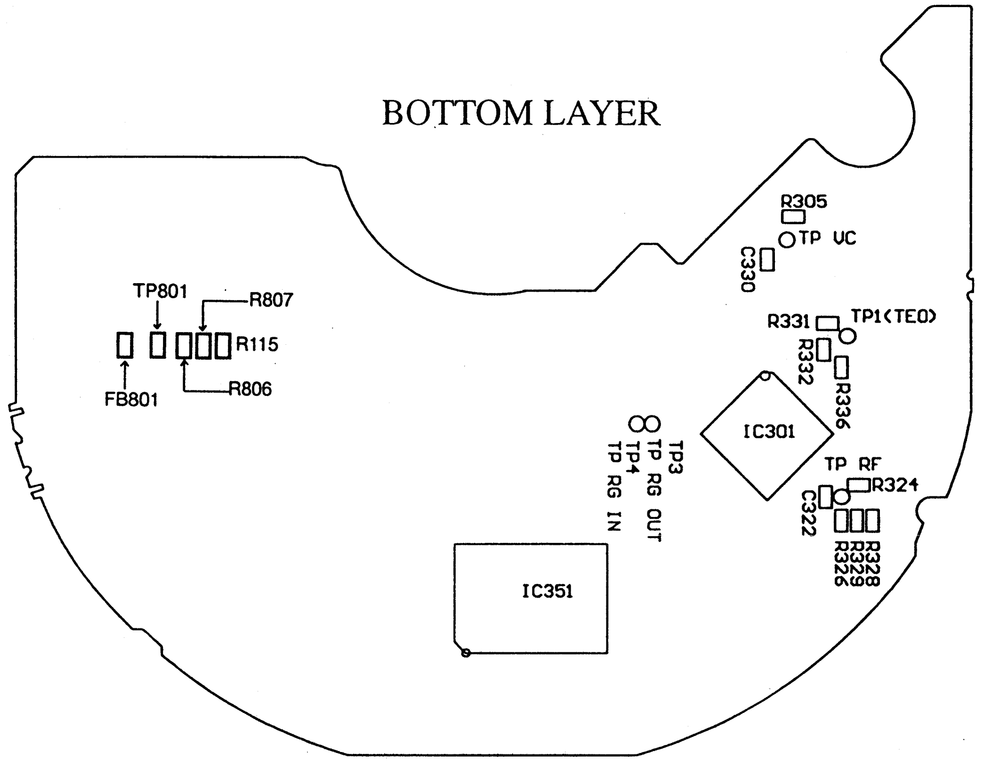

TO CN301
PICK UP ASSY
KSM-542
M2
(SLED MOTOR)
MI
(SPINDLE MOTOR)
SW1
(LIMIT SWITCH)
1 2
CN304
1 2
CN302
1 2
CN303

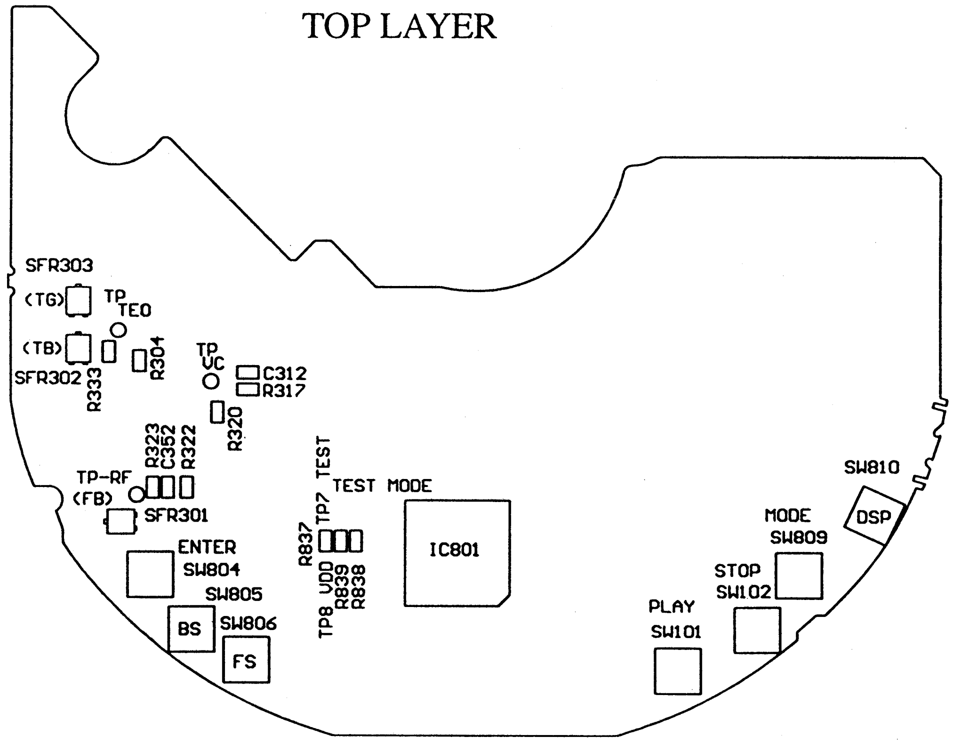
SYMBOL TABLES



ADJUSTMENT

XP-250/255/230/EX200, XP-350/355/S3:

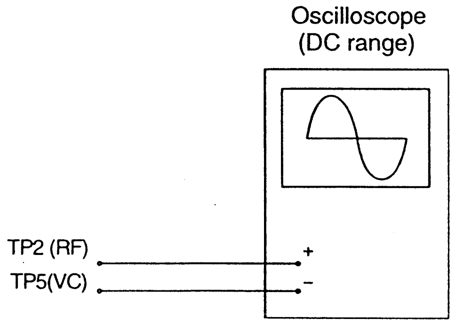

BOTTOM LAYER
R305
TP VC
C330
TP801
R807
R115
FB801
R806
R331
TP1(TEO)
R332
R336
IC301
TP3
TP RG OUT
TP4
TP RG IN
TP RF
R324
C322
R328
R329
R326
IC351


TOP LAYER
SFR303
(TG)
TP TEO
(TB)
SFR302
R333
R304
TP VC
C312
R317
R320
R323
C352
R322
TP-RF
(FB)
SFR301
TP7 TEST
TEST MODE
ENTER
SW804
SW805
BS
SW806
FS
R837
TP8 VDD
R839
R838
IC801
MODE
SW809
SW810
DSP
STOP
SW102
PLAY
SW101

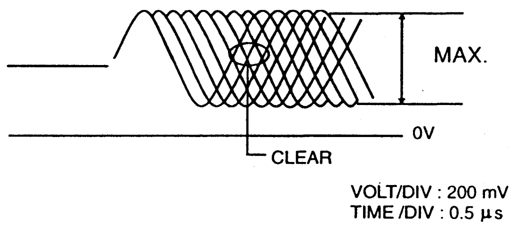
Note:
- Connect a probe (10:1) of the oscilloscope of the frequency counter to a test point.
- During adjustment, connect (-) pin of an oscilloscope to TP5 (VC).

1. Focus Bias Adjustment

Make the focus bias adjustment when replacing and repairing the optical block.


Oscilloscope
(DC range)
TP2 (RF)
TP5(VC)
+
-

1) Connect an oscilloscope to test points TP2 (RF) and TP5 (VC).
2) Turn on the power switch.
3) Insert test disc TCD-783 or TCD-782(YEDS-18) and play back the second composition.
4) Adjust SFR301 so that the level of RF wave to be maximum and clear.

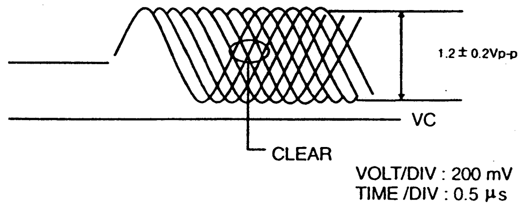

MAX.
OV
CLEAR
VOLT/DIV : 200 mV
TIME /DIV : 0.5 µs

2. RF Waveform Check

Perform this check when an optical block is replaced during repair.

1) Connect an oscilloscope to the test points TP2 (RF) and TP5 (VC) as shown.
2) Turn on the main power.
3) Insert a test disc TCD-783 or TCD-782 (YEDS-18), and press the PLAY button to play the second program.
4) Check that the Waveform has the amplitude as shown below and is most clear.

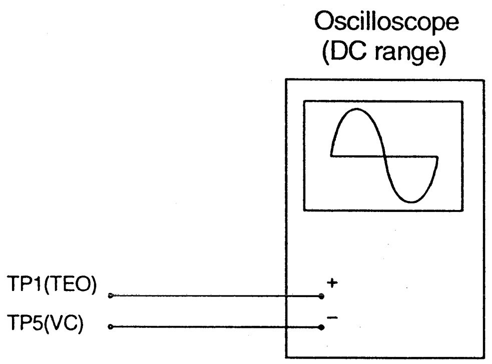
RF Signal Waveform


1.2±0.2Vp-p
VC
CLEAR
VOLT/DIV : 200 mV
TIME /DIV : 0.5 µs

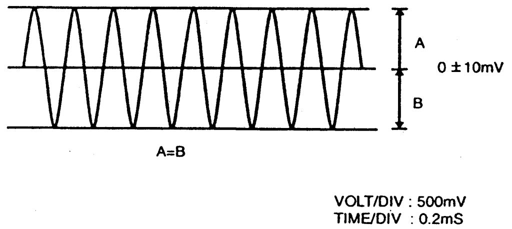
Note: The laser current can be check from the voltages on both sides of R310 (5.6Ω). The laser current valve must fall within the range of ±6.0 mA with respect to the current value shown on the label on the back of the laser pickup unit.

$$\text{Laser current lop} = \frac{\text{Voltage across R310}}{5.6\Omega}$$

3. RADIAL Balance Adjustment


Oscilloscope
(DC range)
TP1(TEO)
TP5(VC)
+
-

1) Connect an oscilloscope to test points TP1 (TEO) and TP5 (VC).
2) Connect the center tap of SFR302 to TP5 (VC).
3) Insert test disc TCD783 or TCA782 (YEDS-18) and press the PLAY (▶) button.
4) Keep pressing the ⏭ button to enter the SEARCH state.
5) Adjust SFR302 so that the waveform on the oscilloscope is vertically symmetrical as shown in the figure below.


A
0±10mV
B
A=B
VOLT/DIV : 500mV
TIME/DIV : 0.2mS

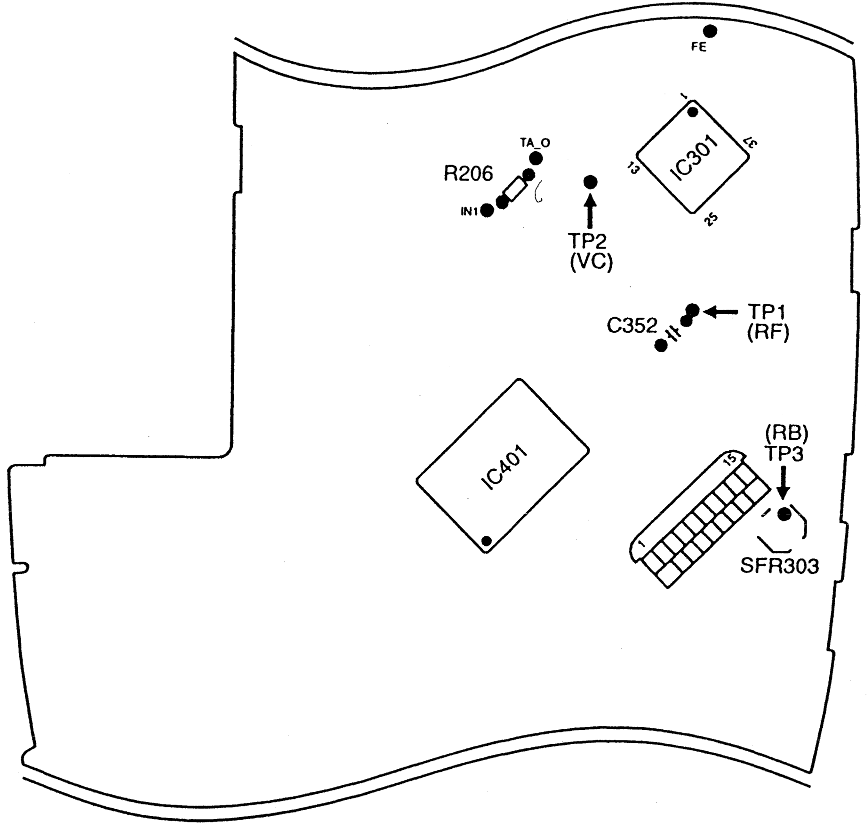
❄ If longer sweep time of an oscilloscope is selected, waveform is easier to observe.

4. RADIAL Gain Adjustment

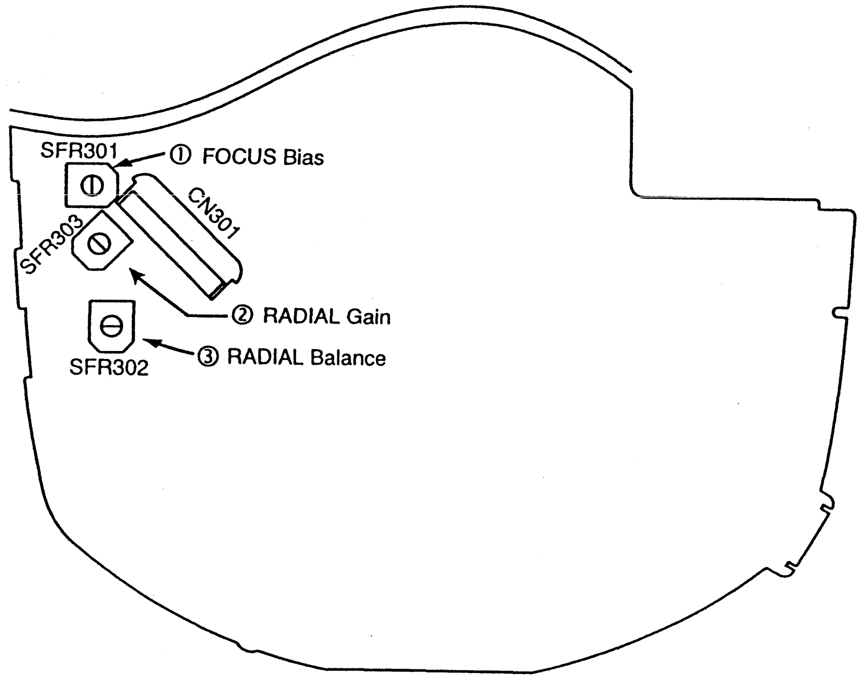
A servo analyzer is necessary in order to perform this adjustment exactly. However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do no perform this adjustment. Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when 2-axis device operates. However, as these gains are reciprocated, the adjustment is performed so that both gains are satisfied.

XP-220/S2/AP1:

BOTTOM SIDE


FE
R206
TA_O
IN1
TP2
(VC)
IC301
1
13
37
25
C352
TP1
(RF)
IC401
(RB)
TP3
15
1
SFR303

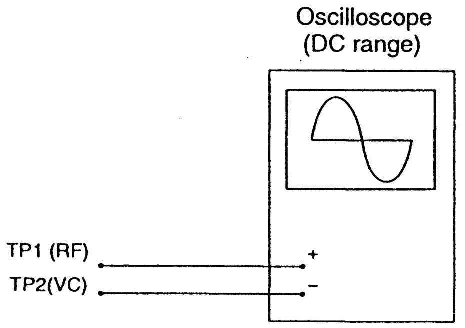
COMPONENT SIDE


SFR301
① FOCUS Bias
CN301
SFR303
② RADIAL Gain
SFR302
③ RADIAL Balance

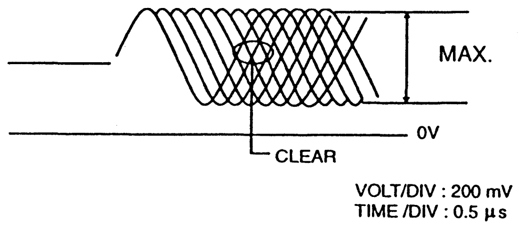
Note:
- Connect a probe (10:1) of the oscilloscope of the frequency counter to a test point.
- During adjustment, connect (-) pin of an oscilloscope to TP2 (VC).

1. Focus Bias Adjustment

Make the focus bias adjustment when replacing and repairing the optical block.


Oscilloscope
(DC range)
TP1 (RF)
TP2(VC)
+
–

1) Connect an oscilloscope to test points TP1 (RF) and TP2 (VC).
2) Turn on the power switch.
3) Insert test disc TCD-783 or TCD-782(YEDS-18) and play back the second composition.
4) Adjust SFR301 so that the level of RF wave to be maximum and clear.

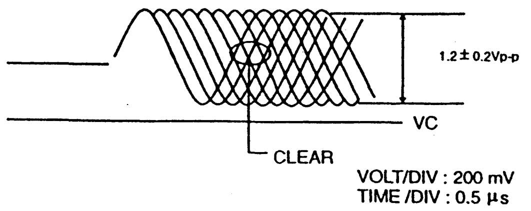

MAX.
0V
CLEAR
VOLT/DIV : 200 mV
TIME /DIV : 0.5 µs

2. RF Waveform Check

Perform this check when an optical block is replaced during repair.

1) Connect an oscilloscope to the test points TP1 (RF) and TP2 (VC) as shown.
2) Turn on the main power.
3) Insert a test disc TCD-783 or TCD-782 (YEDS-18), and press the PLAY button to play the second program.
4) Check that the Waveform has the amplitude as shown below and is most clear.

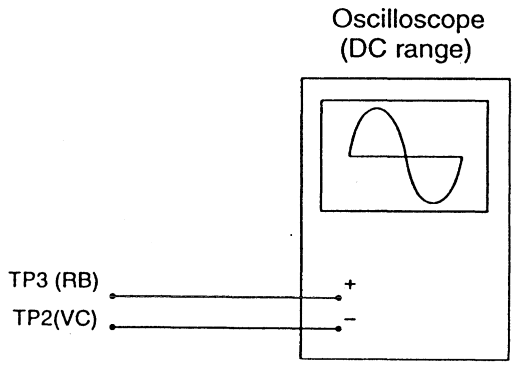
RF Signal Waveform


1.2 ± 0.2Vp-p
VC
CLEAR
VOLT/DIV : 200 mV
TIME /DIV : 0.5 µs

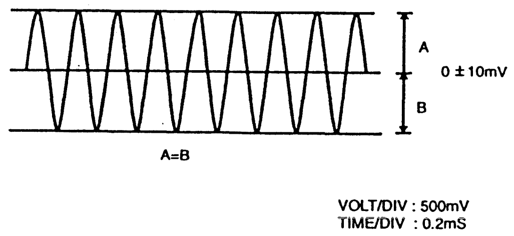
Note: The laser current can be check from the voltages on both sides of R310 (5.6Ω). The laser current valve must fall within the range of ±6.0 mA with respect to the current value shown on the label on the back of the laser pickup unit.

$$\text{Laser current lop} = \frac{\text{Voltage across R310}}{5.6\Omega}$$

3. RADIAL Balance Adjustment


Oscilloscope
(DC range)
TP3 (RB)
TP2(VC)
+
–

1) Connect an oscilloscope to test points TP3 (RB) and TP2 (VC).
2) Connect the center tap of SFR303 to TP2 (VC).
3) Insert test disc TCD783 or TCD782 (YED-18) and press the PLAY (▶) button.
4) Keep pressing the ⏩ button to enter the SEARCH state.
5) Adjust SFR302 so that the waveform on the oscilloscope is vertically symmetrical as shown in the figure below.


A
0 ± 10mV
B
A=B
VOLT/DIV : 500mV
TIME/DIV : 0.2mS

❄ If longer sweep time of an oscilloscope is selected, waveform is easier to observe.

4. RADIAL Gain Adjustment

A servo analyzer is necessary in order to perform this adjustment exactly. However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do no perform this adjustment. Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when 2-axis device operates. However, as these gains are reciprocated, the adjustment is performed so that both gains are satisfied.

KEY NAME AND AD INPUT

XP-250/255/230/EX200, XP-350/355/S3:

1. Individual Input Keys (Active at "L")
   K-PLY : CD PLAY key and CD POWER ON key
   They must wake-up when they is pressed.

2. AD Input Key , AD Input Switch
   The K-FUNK , SWR/H , SWDSL(XP-250/255/230/EX200 only) and K-RMC are identified by AD input as follows.

Port Voltage	KEY Assignment		
	K-FUNC Operation at machine	SWR/H RESUME & HOLD	SWDSL
0~0.292V	STOP	Not Used	Not Used
0.304~0.620V	Not Used	Not Used	Not Used
0.632~0.985V	F SKIP	RESUME & HOLD	DSL2
0.997~1.349V	B SKIP		
1.361~1.714V	ENTER		
1.726~20.79V	MODE	RESUME	DSL1
2.091~2.443V	Not Used		
2.455~2.832V	DSL		
2.845~3.100V	OFF	OFF	OFF

Port Voltage	K-RMC KEY Assignment
	KEY
0~0.146V	Not Used
0.158~0.328V	F SKIP
0.340~0.450V	B SKIP
0.462~0.669V	STOP
0.681~0.973V	Not Used
0.985~1.398V	PLAY
1.410~2.006V	DSL
2.018~2.431V	TEST
2.444~3.100V	OFF

XP-220/S2/AP1:

1. Individual Input Keys (Active at "L")
   K-PLY : CD PLAY key and CDPOWER ON key
   They must wake-up when they is pressed.

2. AD Input Key,AD Input Switch
   The K-FUNC , SWR/H , SWDSL and K-RMC are identified by AD input as follows.

Port Voltage	KEY Assignment		
	K-FUNC Operation at machine	SWDSL	SWR/H RESUME & HOLD
0~0.287V	STOP	Not Used	Not Used
0.299~0.610V	Not Used	Not Used	Not Used
0.622~0.969V	F SKIP	DSL2	RESUME & HOLD
1.100~1.328V	B SKIP		
1.340~1.686V	ENTER		
1.698~2.045V	MODE	DSL1	RESUME
2.057~2.404V	Not Used		
2.416~2.787V	Not Used		
2.799~3.050V	OFF	OFF	OFF

Port Voltage	K-RMC KEY Assignment
	KEY
0~0.144V	Not Used
0.155~0.323V	F SKIP
0.335~0.443V	B SKIP
0.455~0.658V	STOP
0.670~0.957V	Not Used
0.969~1.375V	PLAY
1.387~1.974V	NoT Used
1.985~2.392V	TEST
2.404~3.050V	OFF

TEST MODE (XP-250/255/230/EX200, XP-350/355/S3 ONLY)

1. How to Activate CD Test Mode

NOTE : • Turn OFF the EASS mode.

1) Insert the AC plug.
2) Short the test pad (TP801, refer to illustration in adjustment page).
3) Press the PLAY or STOP key.

2. How to cancel CD Test Mode
1) Disconnect the AC plug.
2) Remove the soldering of short land.

3. CD Test Mode Functions
When test mode is activated, the following mode functions from No. 1 to No. 6 can be used by pressing the operation keys.

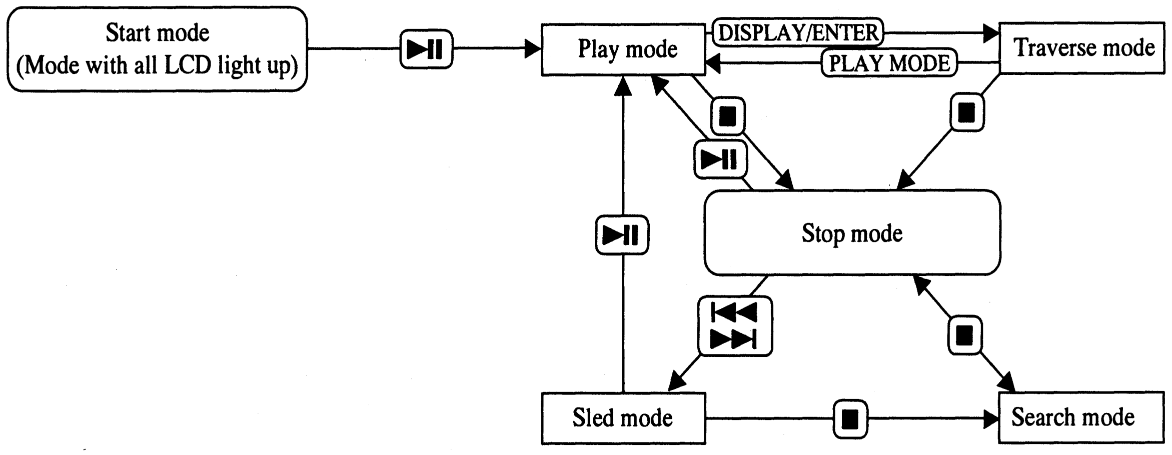
Mode / No.	Operation	LCD display	Operation	Contents
Start mode No. 1	Test mode activation	All LCD light up	• Laser diode illuminated under normal circumstances • Test mode is activated • All LCD displays light up	• All FL displays light up • Laser current measurement • Check APC circuit
Stop mode No. 2	■ key	Normal light up	• Laser diode illuminated under normal circumstances	• Check APC circuit • Laser current measurement
Search mode No. 3	■ key	/ /	• Continual focus search	FOCUS SERVO • Check focus search waveform • Check focus error waveform * FOK / FZC are not monitored in the search mode.
Play mode No. 4	▶II key	Normal light up	• Normal playback • Continual focus search (without CD)	FOCUS SERVO / TRACKING SERVO CLV SERVO / SLED SERVO Check FOK / FZC
Traverse mode No. 5	MEMORY mode	All FL light up	• During normal disc playback Tracking servo OFF	Tracking balance (traverse) adjustment
	PALY mode	All FL light up	Tracking servo ON * NOTE 2	
Sled mode No. 6	I◀◀ key ▶▶I	All FL light up	• Pickup moves to the outermost track • Pickup moves to the innermost track * NOTE 3 (During playback, machine operates normally.)	SLED SERVO Check SLED mechanism operation

* NOTE 1: Insert the test disk and press the PLAY key (▶II) after activating the test mode.
Disconnect the AC plug and activate CD test mode again if pressing the other key. Because the test mode does not operate correctly in case of pressing except PLAY key.

* NOTE 2: Do not press the PLAY MODE key except make the tracking servo is ON. There is a case that the test mode does not works correctly.

* NOTE 3: When pressing the I◀◀ or ▶▶I keys, take care to avoid damage to the gears. Because the sled motor is activated when the I◀◀ or ▶▶I keys are pressed, even when the pick-up is at the outermost or innermost track.

4. Operation Outline
The operation of each mode is carried out in the direction of the arrows from the start mode as indicated in the following illustration.



IC DESCRIPTION

IC, M3822M2-157GP (XP-220/S2/AP1 ONLY)

Pin No.	Pin Name	I/O	Description
1	K-RMC	I	Wired remote control input terminal.
2	K-FUNC	I	Operation key input terminal.
3	SWDSL	I	DSL setting switch input terminal.
4	SW R/H	I	RESUME/HOLD setting switch input terminal.
5	VDIN	I	Battery voltage monitoring terminal.
6	VDAIN	I	Not connected.
7	ACIN	I	AC adaptor detection signal input terminal. Detect AC adaptor at "H".
8	ZMIN	I	Detect infinity zero signal of audio.
9	LOCK	I	LOCK signal input terminal from DSP.
10	$\overline{\text{SON}}$	O	Servo power supply ON/OFF signal output terminal. "L" when ON.
11	CNIN	I	Track jump count pulse input terminal.
12	BEEP	O	Beep signal output terminal.
13	XCLK	O	Control clock signal to DSP output terminal.
14	XLAT	O	Control data latch signal to DSP output terminal.
15	XDATA	O	Control data signal to DSP output terminal.
16	SCOR	I	Sub code sync signal from DSP input terminal.
17	$\overline{\text{SRST}}$	O	System reset signal output terminal.
18	SQCK	O	Subcode Q clock output terminal.
19	SENS	I	SENSE signal from SP input terminal.
20	SUBQ	I	Subcode Q input terminal.
21	YMLD	–	Not connected.
22	YMCLK	–	Not connected.
23	YMDATA	–	Not connected.
24	ZSENSE	–	No connected.
25	$\overline{\text{RESET}}$	I	Microporocessor reset signal input terminal.
26	YDMUTE	–	Not connected.
27	NC	–	Not connected.
28	XCLKI	I	Master clock input terminal. 2.1MHz.
29	XOUT	–	Not connected.
30	VSS	–	Ground.
31	DISCHRG	O	Battery discharge control signal output terminal. "H" to discharge.
32	CHRG	O	Battery charge control signal output terminal. "H" to charge.
33	NC	–	Not connected.
34	DSLE	O	DSL circuit control signal output terminal. DSL-1 ON at "H".
35	DSLON	O	DSL circuit control signal output. DSL ON at "L".
36	STNBY	O	HP AMP ON/OFF signal output. Standby ON at "L".
37	B-MUTE	O	HP AMP mute signal output terminal. Mute ON at "H". (Not connected)
38	A-MUTE	O	Audio mute control signal output terminal. Mute ON at "H".
39	$\overline{\text{SON}}$	O	Servo power supply ON/OFF signal output terminal. "L" when ON. (Not connected)
40	SON	O	Servo power supply ON/OFF signal output terminal. "H" when ON. (Not connected)
41	POFF	O	Power supply (DC/DC convertor) ON/OFF signal output terminal. "H" when ON.
42	SLCON	O	Sled motor control signal output terminal.
43	SPCON	O	Spindle motor control signal output terminal.
44	B-EMP	O	Battery remainder LED display output terminal. (RED LED) (Not connected)
45	B-MID	O	Battery remainder LED display output terminal. (YELLOW LED) (Not connected)
46	B-FULL	O	Battery remainder LED display output terminal. (GREEN LED) (Not connected)
47	CHGSEL	I	NiCd/NiMH mode selection. NiCd at "H". (Not connected)
48	7/8SEL	I	XP-250/350 mode selection. XP-250 at "H". (Not connected)
49	TEST MODE	I	Test mode setting input terminal. Test mode at "H".
50	NC	–	Not connected.
51	SWCLS	I	Open/Close of lid detection switch input terminal. "H" when closed.
52	SWCL	–	Not connected.
53	K-STOP	I	STOP key input terminal. Start charging input terminal.
54	K-PLAY	I	PLAY key input terminal.
55~70	SEG0~SEG15	O	LCD segment terminals.
71	VCC	–	Power supply. (+3V)
72	VREF	–	Reference voltage for A/D convertor input terminal.
73	AVSS	–	Analog ground.
74~77	COM0~COM3	O	LCD common terminals.
78~80	VL3~VL1	I	LCD driver voltage setting terminals.

IC, M38223M-6HC (XP-250/255/230/EX200, XP-350/355/S3 ONLY

Pin No.	Pin Name	I/O	Description
1	K-RMC	I	Remote key is detected and input.
2	K-FUNC	I	Operation key data input terminal.
3	SWDSL	I	DSL OFF/1/2 is detected and input to this terminal.
4	SW R/H	I	RESUME/HOLD is detected and input to this terminal.
5	VDIN	I	Battery voltage monitoring terminal.
6	VDAIN	I	Not used.
7	ACIN	I	AC/DC discriminate terminal.
8	ZMIN	I	Zero mute signal input from CXD2508AQ.
9	LOCK	I	LOCK signal input from CXD2508AQ.
10	NC	–	No used.
11	CNIN	I	C-OUT signal input from CXD2508AQ.
12	BEEP	O	Beep signal output.
13	XCLK	O	Serial clock output to CXD2508AQ.
14	XLAT	O	Serial latch output to CXD2508AQ.
15	XDATA	O	Serial data output to CXD2508AQ.
16	SCOR	I	Sub code read sense signal. "H" when read is completed.
17	$\overline{\text{SRST}}$	O	System reset. Reset at "L".
18	SQCK	O	Subcode Qclock.
19	SENS	I	SENSE signal input.

Pin No.	Pin Name	I/O	Description
20	SUBQ	I	Subcode Q input.
21	DLAT	O	Serial latch output to YSS231.
22	DCLK	O	Serial clock output to YSS231.
23	DDATA	O	Serial data output to YSS231.
24	NC	–	No used.
25	$\overline{\text{RESET}}$	I	Microporocessor reset. Reset at "L".
26	NC	–	No used.
27	NC	–	No used.
28	CLXIN	I	External system clock input for microprocessor.
29	NC	–	No used.
30	VSS	–	Ground.
31	DISCHRG	O	Battery discharge control signal output. "H" to discharge.
32	CHRG	O	Battery charge control signal output. "H" to charge.
33	SDATA	I	Serial remote control signal input. (Not used)
34	DSLE	O	DSL 1/2 control signal output. DSL-1 ON at "H".
35	DSLON	O	DSL ON/OFF control signal output. DSL ON at "L".
36	STNBY	O	HP AMP power control signal output. Power ON at "H".
37	B-MUTE	O	HP AMP mute signal output. Mute ON at "H".
38	A-MUTE	O	Audio mute signal output. Mute ON at "H".
39	$\overline{\text{SON}}$	O	"L" when system power is ON.
40	SON	O	"H" when system power is ON.
41	POFF	O	Main power control latch signal output. Power on latch at "H".
42	SLCON	O	Control signal for sled motor pulse-drive. (Pulse is output only during PALY)
43	SPCON	O	Control signal for spindle motor.
44	B-EMP	O	"L" when battery remainder display output is EMPTY.
45	B-MID	O	"L" when battery remainder display output is MIDDLE.
46	B-FULL	O	"L" when battery remainder display output is FULL.
47	CHGSEL	I	NiCd/NiMH mode selection. NiCd at "H".
48	6/7SEL	I	XP-250/350 mode selection. XP-250 at "H".
49	TEST	I	Test mode input terminal. Test mode at "H".
50	NC	–	No used.
51	SWCL	I	Open/Close of lid is detected and input. "L" when closed.
52	SWRB	–	Not connected.
53	K-STOP	I	STOP key input.
54	K-PLAY	I	PLAY key input.
55~70	SEG0~SEG15	O	LCD segment terminals.
71	VCC	–	Power supply.
72	VREF	–	Reference power supply for A/D input port.
73	AVSS	–	Analog ground.
74~77	COM0~COM3	O	LCD common terminals.
78	VL3	I	Power input to LCD bias power supply.

Pin No.	Pin Name	I/O	Description
79	VL2	I	Power input to LCD bias power supply.
80	VL1	I	Power input to LCD bias power supply.

IC, CXD2508AQ

Pin No.	Pin Name	I/O	Description
1	SCOR	O	1H when the subcode sync S0 or S1 is detected.
2	SBSO	O	SUBP~W serial output. (Not connected)
3	EXCK	I	Clock input for SBSO read out.
4	SQSO	O	SUBQ 80-bit serial output.
5	SQCK	I	Clock input for SQSO read out.
6	MUTE	I	"H" to mute. "L" to cancel.
7	SENS	O	SENS signal output to CPU.
8	XRST	I	System reset. "L" to reset.
9	DATA	I	Serial data input from CPU.
10	XLAT	I	Latch input from CPU. Latching serial data at fall down.
11	CLOK	I	Clock input from CPU to transfer serial data.
12	VSS	–	Ground.
13	SEIN	I	SENS input from SSP.
14	CNIN	I	Numbers of track jump are counted and input.
15	DATO	O	Serial data output to SSP.
16	XLTO	O	Serial data latched output to SSP. Latched at fall down edge.
17	CLKO	O	Clock input from SSP to transfer serial data.
18	SPOA	I	Microprocessor expansion interface.
19~20	SPOB~SPOC	I	Microprocessor expansion interface.
21	XTSL	I	Crystal selection input. Low for 16.9344MHz, Hignt for 33.8688MHz.
22	XLON	O	Microprocessor expansion interface output. (Not connected)
23	FOK	I	Focus OK input pin. Used for SENS output and servo auto sequencer.
24	MON	O	Spindle motor ON/OFF control output. (Not connected)
25	MDP	O	Spindle motor servo control output.
26	MDS	O	Spindle motor servo control output. (Not connected)
27	LOCK	O	GFS is sampled by 460Hz. "H" output when GFS is H. "L" output when GFS is L for 8 consecutive times.
28	TEST1	I	TEST. (Connected GND)
29	FILO	O	Filter output to master PLL. (Slave = digital PLL)
30	FILI	I	Filter input to master PLL.
31	PCO	O	Charge-pump output master PLL.
32	VDD	–	Power supply input. (+5V)
33	AVSS1	–	Ground.
34	CLTV	I	VCO control voltage input to master PLL.
35	AVDD1	–	Power supply input. (+5V).
36	RF	I	EFM signal input.

Pin No.	Pin Name	I/O	Description
37	BIAS	I	Constant current input to asymmetry correction circuit.
38	ASYI	I	Comparate voltage input to asymmetry correction circuit.
39	ASYO	O	EFM full swing output. ("L" = VSS, "H" = VDD)
40	ASYE	I	"L" : asymmetry correction OFF. "H" : asymmetry correction ON.
41	WDCK	O	D/A interface, word clock (2Fs) for 48-bit slot. (Not connected)
42	LRCK	O	D/A interface, LR clock (Fs) for 48-bit slot.
43	LRCKI	I	LR clock input to DAC. (48-bit slot)
44	PCMD	O	D/A interface, serial data. (2'S complement, MSB first)
45	PCMDI	I	Audio data input to DAC. (48-bit slot)
46	BCK	O	D/A interface, bit clock.
47	BCKI	I	Bit clock input to DAC. (48-bit slot)
48	QTOP	O	QTOP output. (Not connected)
49	XUQF	O	XUQF output. (Not connected)
50	XPCK	O	XPCK output. (Not connected)
51	GFS	O	GFS output. (Not connected)
52	RFCK	O	RFCK output. (Not connected)
53	VSS	–	Ground.
54	CZPO	O	CZPO output. (Not connected)
55	XROF	O	XROF output.
56	MNT3	O	MNT3 output. (Not connected)
57	MNT1	O	MNT1 output. (Not connected)
58	MNT0	O	MNT0 output. (Not connected)
59	FSTT	O	Pins-73 and 74 divided-by 2/3 output. (Not connected)
60	C4M	O	4.2336 MHz output.
61	DOUT	O	Digital out connector output signal. (Not connected)
62	EMPH	O	"H" when the playback disc has emphasis. "L" when it does not. (Not connected)
63	EMPHI	I	DAC emphasis ON/OFF. "H" when ON. "L" when OFF.
64	WFCK	O	WFCK (Write Frame Clock) output. (Not connected)
65	ZEROL	O	No sound data detection output. "H"(L-ch) when no sound data is detected.
66	ZEROR	O	No sound data detection output. "H"(R-ch) when no sound data is detected.
67	DTSI	I	TEST for DAC. (Normally "L")
68	VDD	–	Power supply input. (+5V)
69	NLPWM	O	L-ch PWM output. (Reverse polarity)
70	LPWM	O	L-ch PWM output. (Normal polarity)
71	AVDD2	–	Power supply input to L-ch PWM driver. (Connected to +5V)
72	AVDD3	–	Power supply input to X'tal. (Connected to +5V)
73	XTAI	I	X'tal input to 16.9344MHz oscillator circuit.
74	XTAO	O	16.9344MHz X'tal oscillator circuit output.
75	AVSS3	–	Ground input to X'tal. (Connected to ground)
76	AVSS2	–	Ground input to PWM driver. (Connected to ground)
77	NRPWM	O	R-ch PWM output. (Reverse phase)

Pin No.	Pin Name	I/O	Description
78	RPWM	O	R-ch PWM output. (Normal phase)
79	DTS2	I	TEST-2 for DAC. (Normally"L")
80	DTS3	I	TEST-3 for DAC. (Normally"L")

IC, CXA1782BQ

Pin No.	Pin Name	I/O	Description
1	FEO	O	Focus error amplifier output pin. This pin is connected to the FZC comparator input internally.
2	FEI	I	Focus error input pin.
3	FDFCT	I	Capacitor connection pin for time constant used when there is defect.
4	FGD	I	This pin is connected to ground via capacitor when high frequency gain of the focus servo is attenuated.
5	FLB	I	This is a pin where the time constant is externally connected to raise the low frequency gain of the focus servo.
6	FEO	O	Focus drive output.
7	FEM	I	Focus amplifier inverted input pin.
8	SRCH	I	This is a pin where the time constant is externally connected to generate the focus serarch waveform.
9	TGU	I	This is a pin where the selection time constant externally connected to set the tracking servo the high frequency gain.
10	TG2	I	This is a pin where the selection time constant externally connected to set the tracking high frequency gain.
11	FSET	I	Pin for setting peak of the phase compensator of the focus tracking.
12	TALM	I	Tracking amplifier inverted input pin.
13	TAO	O	Tracking drive output.
14	SLP	I	Sled amplifier non-inverted input pin.
15	SLM	I	Sled amplifier inverted input pin.
16	SLO	O	Sled drive output.
17	ISET	I	The current which determines height of the focus search, track jump and sled kick is input.
18	VCC	–	+5V power supply pin.
19	CLK	I	Serial data transfer clock input from CPU.
20	XLT	I	Latch input from CPU.
21	DATA	I	Serial data input from CPU.
22	XRST	I	Reset input pin. Reset at "L".
23	COUT	O	Signal output to count the number of tracks.
24	SENS	O	FZC, DFCT, TZC, Gain or BAL is output depending on the command from CPU.
25	FOK	O	Output pin of the focus OK comparator.
26	CC2	O	Input pin where the DEFECT bottom hold output is capacitance coupled.
27	CC1	I	DEFECT bottom hold output pin.
28	CB	I	This is a pin where the DEFECT bottom hold capacitor is connected.

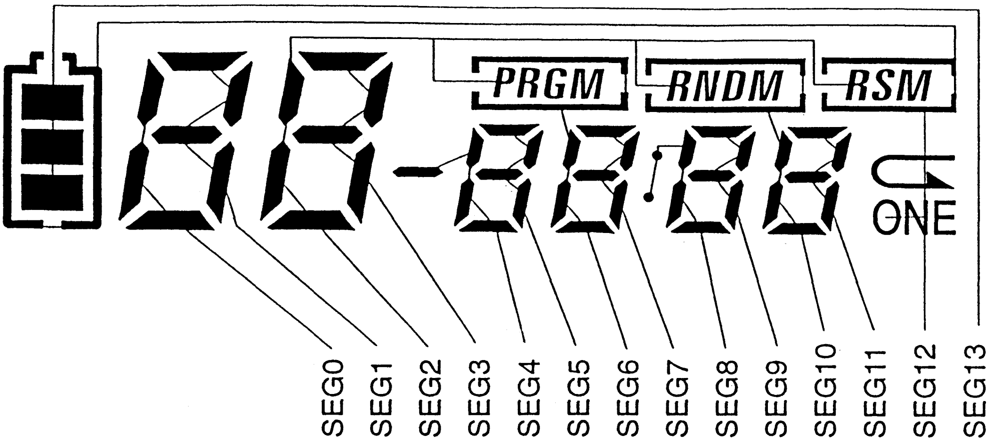
Pin No.	Pin Name	I/O	Description
29	CP	I	This is a pin where the MIRR hold capacitor is connected and MIRR comparator non-inverted signal is input.
30	RFI	I	Input pin where the RF summing amplifier output is capacitance coupled.
31	RFO	O	RF summing amplifier output pin. (Eye pattern check point)
32	RFM	I	RF summing amlifier inverted input pin. Gain of RF amplifier is determined by the resistor connected between RFO and this pin.
33	LD	O	APC amplifier output pin.
34	PD	I	APC amplifier input pin.
35~36	PD1~2	I	RF I-V amplifier inverted input pin. These pins are connected to the A+C and B+D pins of the optical pick-up.
37	FF BIAS	I	Bias adjustment pin of the focus error amplifier.
38~39	F~E	I	F and E IV amplifier non-inverted input pins. These pins are connected to the F and E of the optical pick-up.
40	EI	–	Gain adjustment pin of the I-V amplifier E.
41	VEE	–	Ground connection pin.
42	TEO	O	Tracking error amplifier output pin. E-F signal is output.
43	LPFI	I	BAL adjustment comparator input pin.
44	TEI	I	Tracking error input pin.
45	ATSC	I	Window comparator input pin for detecting ATSC.
46	TZC	I	Tracking zero-cross comparator input pin.
47	TDRCT	I	Capacitor connection pin for the time constant used when there is defect.
48	VC	O	DC voltage output pin of VREF. (VDD/2)

IC, YSS231M (XP-350/355/S3 ONLY)

Pin No.	Pin Name	I/O	Description
1	VSS	–	Ground.
2	MCLK	I	Clock input.
3	NC	–	Not connected.
4	LRCKO	O	Digital audio output. (word clock)
5	BCKO	O	Digital audio output. (bit clock)
6	NC	–	Not connected.
7	SDO	O	Digital audio output. (serial data)
8	VDD	–	Power supply input. (+5V)
9	SDI	I	Digital audio input. (serial data)
10	BCKI	I	Digital audio input. (bit clock)
11	NC	–	Not connected.
12	LRCKI	I	Digital audio input. (word clock)
13	CDI	I	Micro computer interface. (serial data)
14	SCK	I	Micro computer interface. (serial clock)
15	CS	I	Micro computer interface. (chip select)
16	IC	I	Initial clear input.

LCD ILLUSTRATION

XP-220/S2/AP1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RNDM
RSM
ONE
SEG0
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
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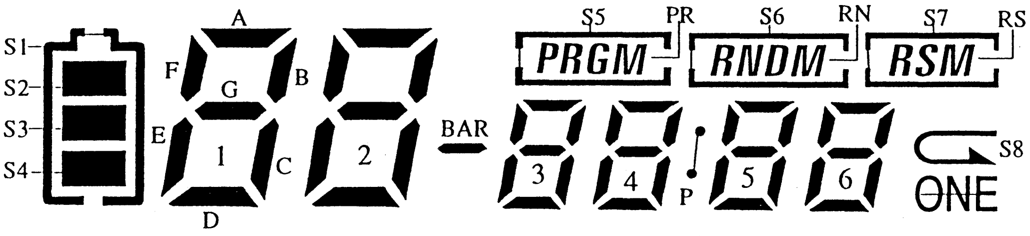
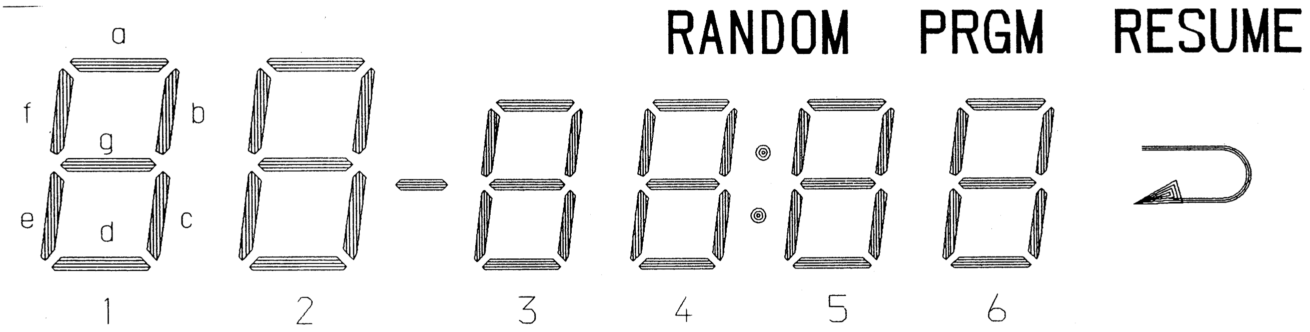
SEG10
SEG11
SEG12
SEG13


S1
S2
S3
S4
A
B
C
D
E
F
G
1
2
BAR
3
4
P
5
6
S5
PR
S6
RN
S7
RS
PRGM
RNDM
RSM
S8
ONE

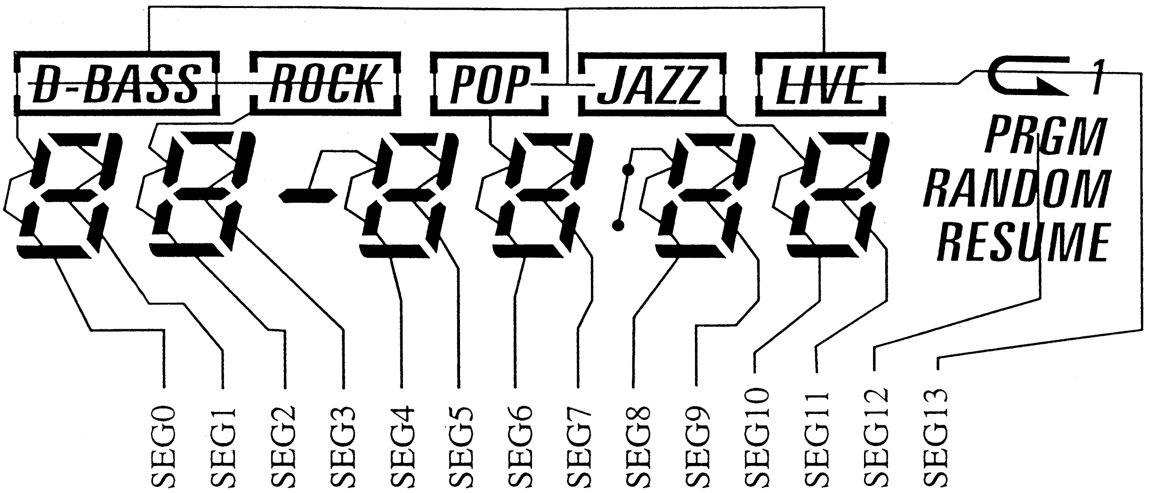
NO.	COM.0	COM.1	COM.2	COM.3
1	COM0			
2		COM1		
3			COM2	
4				COM3
5		1-F	1-E	1-D
6	1-A	1-B	1-G	1-C
7	PR, RN, RS	2-F	2-E	2-D
8	2-A	2-B	2-G	2-C
9	BAR	3-F	3-E	3-D
10	3-A	3-B	3-G	3-C
11	S5	4-F	4-E	4-D
12	4-A	4-B	4-G	4-C
13	P	5-F	5-E	5-D
14	5-A	5-B	5-G	5-C
15	S6	6-F	6-E	6-D
16	6-A	6-B	6-G	6-C
17	S7	S1	S8	ONE
18	S2	S3	S4	

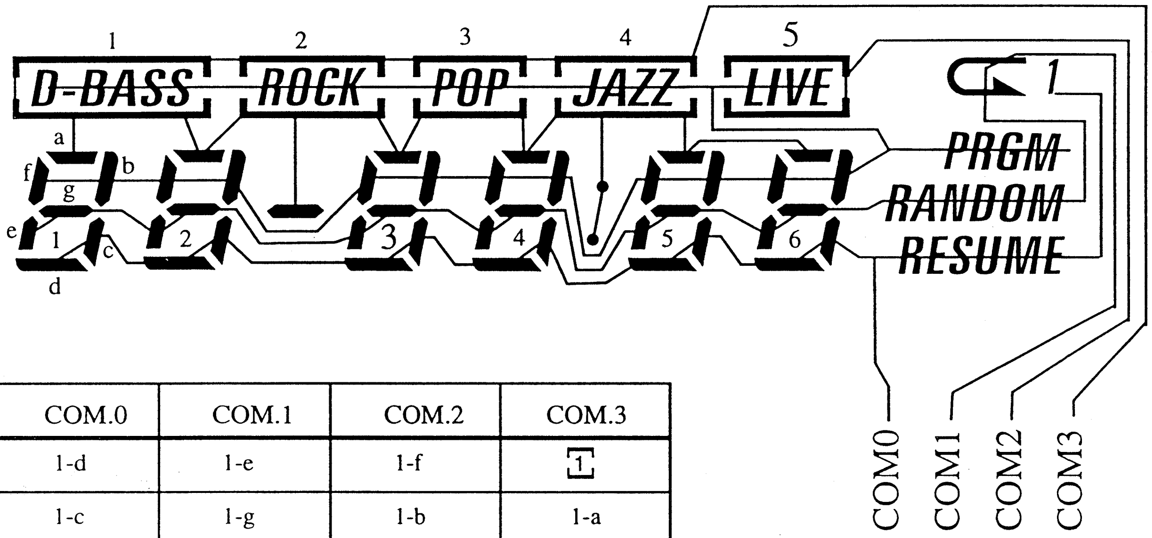
XP-250/255/230/EX200:


RANDOM
PRGM
RESUME
a
f
b
g
e
c
d
1
2
3
4
5
6

NO.	COM. 1	COM. 2	COM. 3	COM. 4
1	1d	1e	1f	
2	1c	1g	1b	1a
3	2d	2e	2f	
4	2c	2g	2b	2a
5	3d	3e	3f	—
6	3c	3g	3b	3a
7	4d	4e	4f	**RANDOM**
8	4c	4g	4b	4a
9	5d	5e	5f	◎ ◎
10	5c	5g	5b	5a
11	6d	6e	6f	**PRCM**
12	6c	6g	6b	6a
13		↩		**RESUME**
14				**1**
15				COM. 4
16			COM. 3	
17		COM. 2		
18	COM. 1			

XP-350/355/S3:

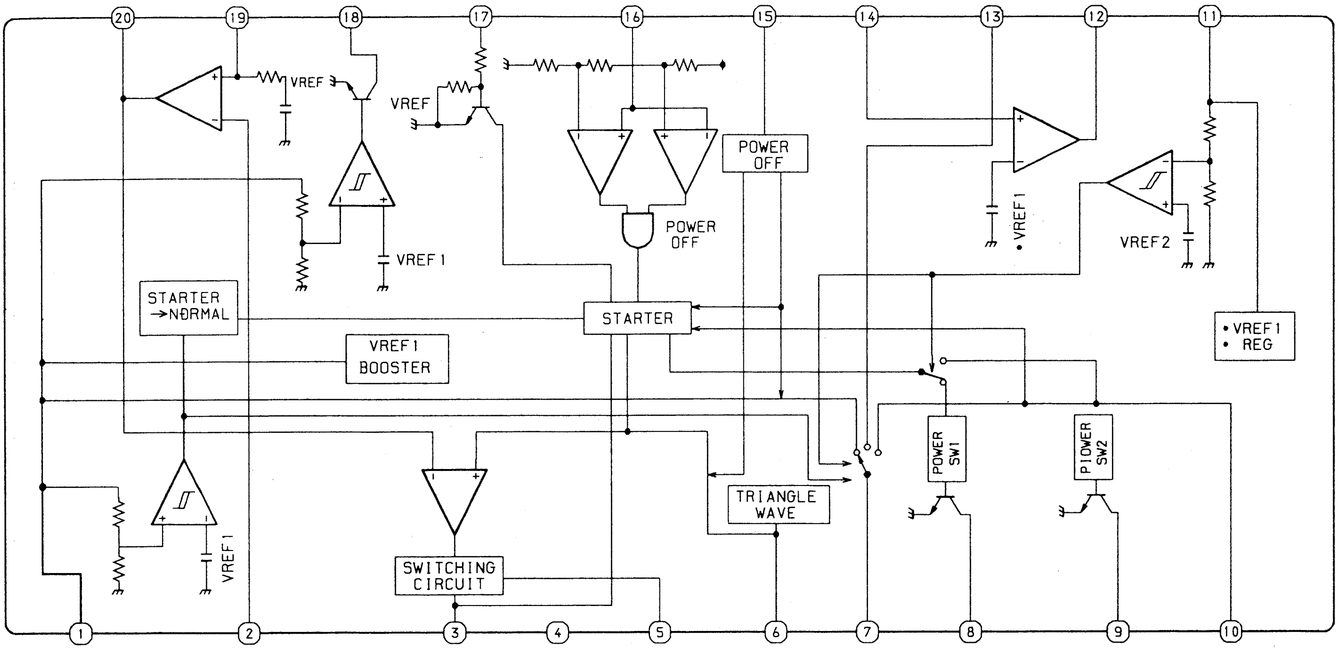

D-BASS
ROCK
POP
JAZZ
LIVE
1
PRGM
RANDOM
RESUME
SEG0
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
SEG8
SEG9
SEG10
SEG11
SEG12
SEG13


1
2
3
4
5
D-BASS
ROCK
POP
JAZZ
LIVE
1
PRGM
RANDOM
RESUME
a
b
f
g
e
c
d
1
2
3
4
5
6
COM0
COM1
COM2
COM3

NO.	COM.0	COM.1	COM.2	COM.3
1	1-d	1-e	1-f	$\boxed{1}$
2	1-c	1-g	1-b	1-a
3	2-d	2-e	2-f	$\boxed{2}$
4	2-c	2-g	2-b	2-a
5	3-b	3-e	3-f	—
6	3-c	3-g	3-b	3-a
7	4-d	4-e	4-f	$\boxed{3}$
8	4-c	4-g	4-b	4-a
9	5-d	5-e	5-f	:
10	5-c	5-g	5-b	5-a
11	6-d	6-e	6-f	$\boxed{4}$
12	6-c	6-g	6-b	6-a
13	RESUME	RANDOM	PRGM	
14	1	↻	$\boxed{5}$	D-BASS ROCK , POP JAZZ , LIVE
15	COM.0			
16		COM.1		
17			COM.2	
18				COM.3

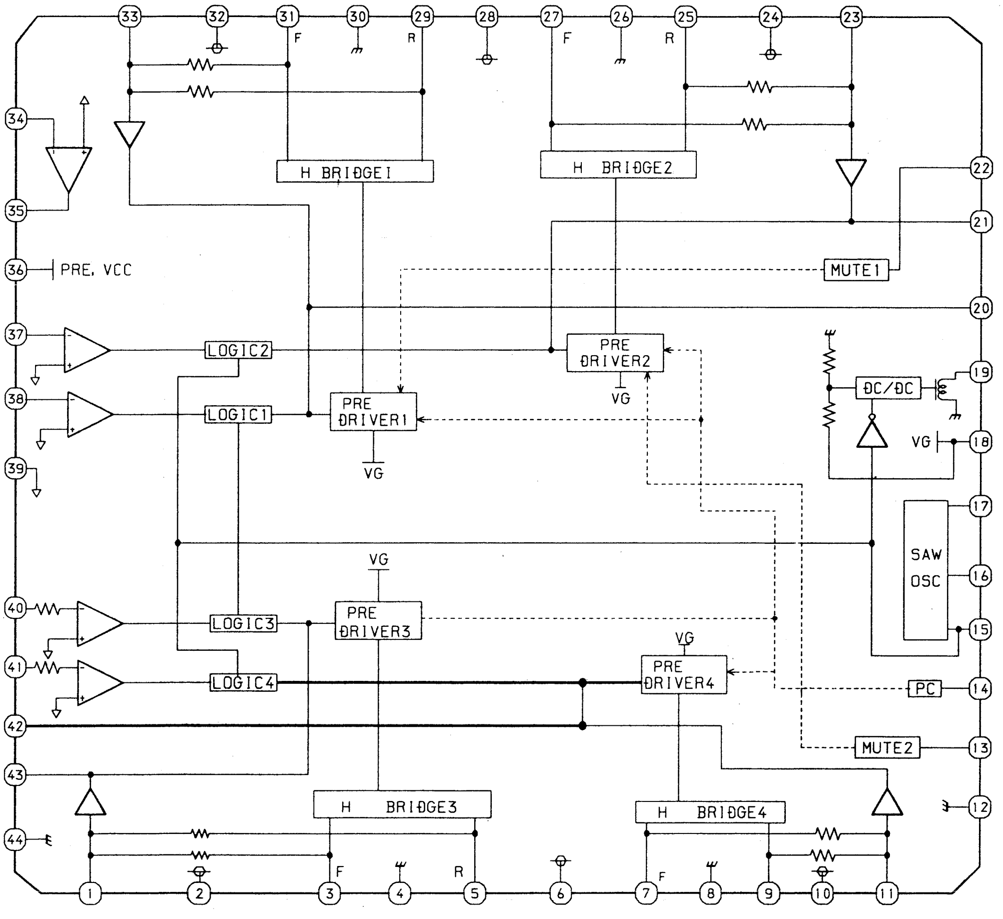
IC BLOCK DIAGRAM

IC, BA6656FV



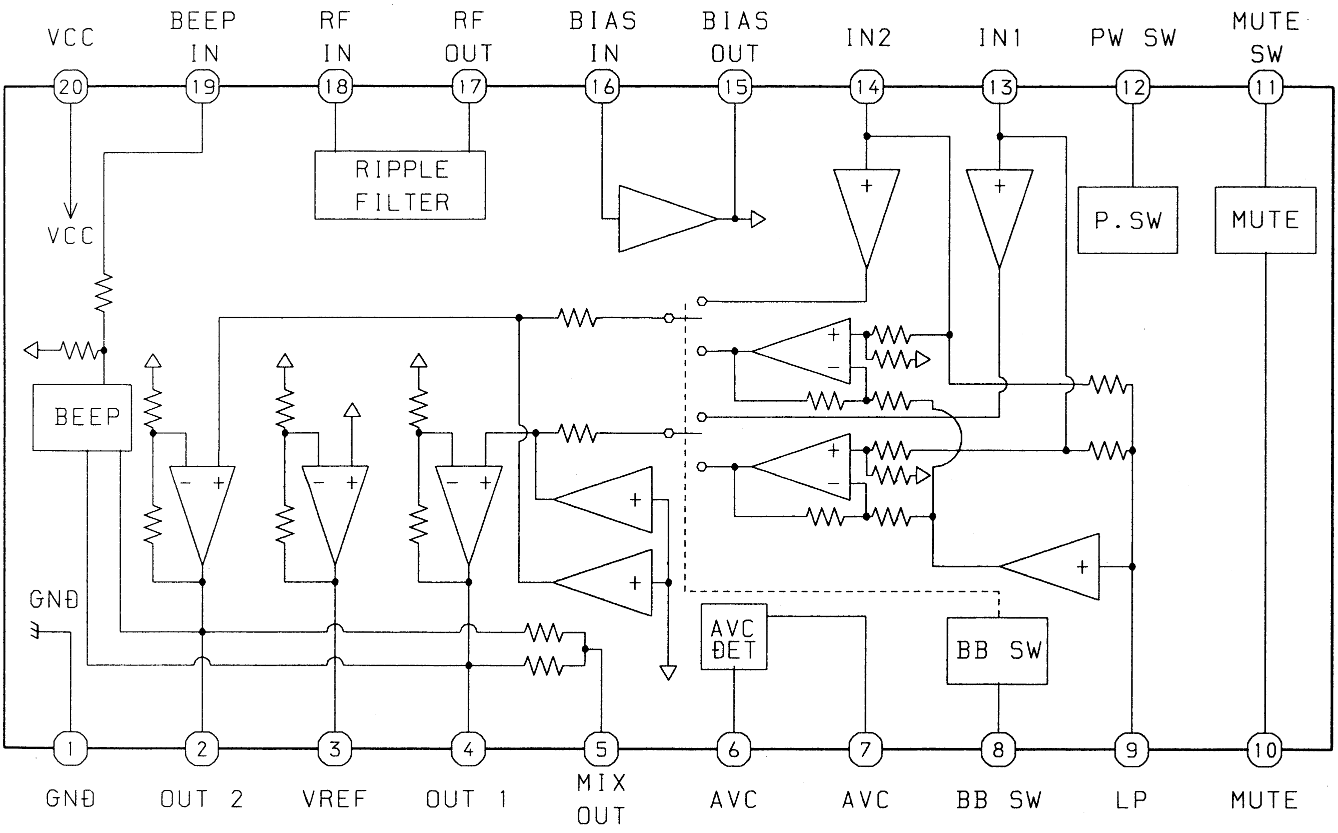
VREF
VREF
VREF 1
POWER OFF
POWER OFF
STARTER →NORMAL
STARTER
VREF1 BOOSTER
TRIANGLE WAVE
SWITCHING CIRCUIT
VREF1
• VREF1
VREF2
• VREF1 • REG
POWER SW1
PIOWER SW2

IC, BH6505K (XP-250/255/230/EX200, XP-350/355/S3 ONLY)

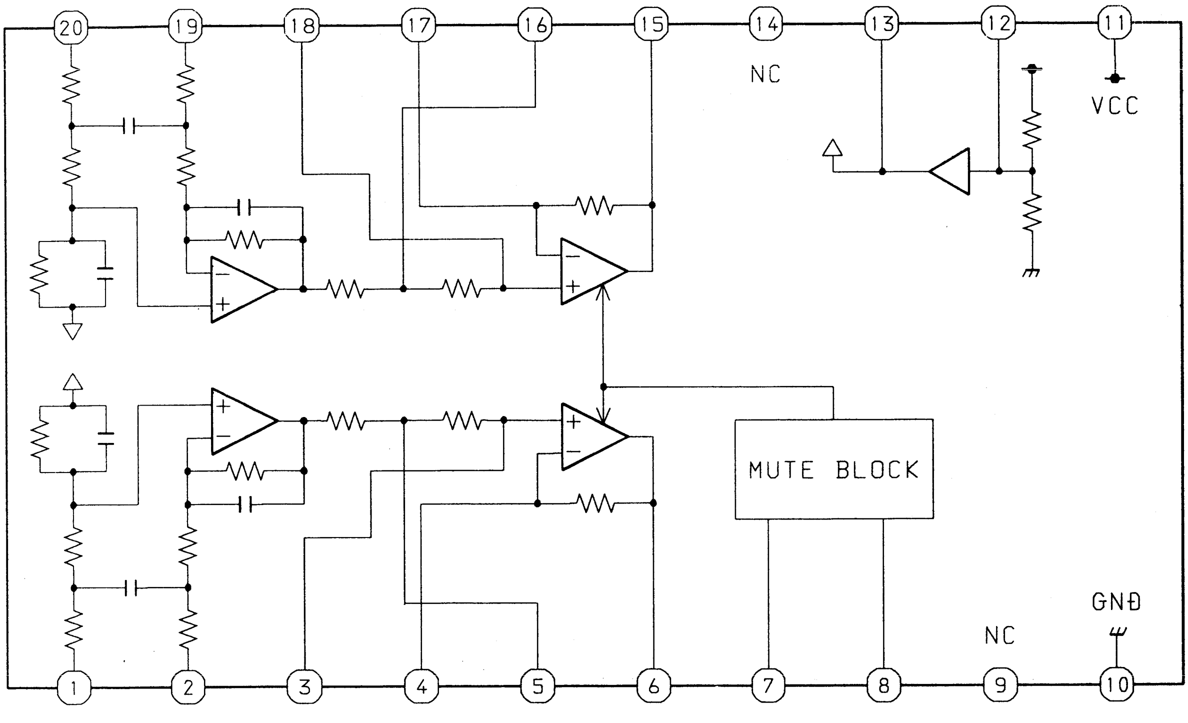


F
R
F
R
H BRIDGE1
H BRIDGE2
PRE. VCC
MUTE1
LOGIC2
LOGIC1
PRE DRIVER2
PRE DRIVER1
VG
VG
DC/DC
VG
SAW OSC
VG
PRE DRIVER3
LOGIC3
LOGIC4
VG
PRE DRIVER4
PC
MUTE2
H BRIDGE3
H BRIDGE4
F
R
F

IC, BA3574BFS


VCC
BEEP IN
RF IN
RF OUT
BIAS IN
BIAS OUT
IN2
IN1
PW SW
MUTE SW
20
19
18
17
16
15
14
13
12
11
RIPPLE FILTER
VCC
P.SW
MUTE
BEEP
GND
AVC DET
BB SW
1
2
3
4
5
6
7
8
9
10
GND
OUT 2
VREF
OUT 1
MIX OUT
AVC
AVC
BB SW
LP
MUTE

IC, BH3563FV
(XP-250/255/230/EX200, XP-350/355/S3 ONLY)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19
18
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14
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NC
VCC
MUTE BLOCK
GND
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3
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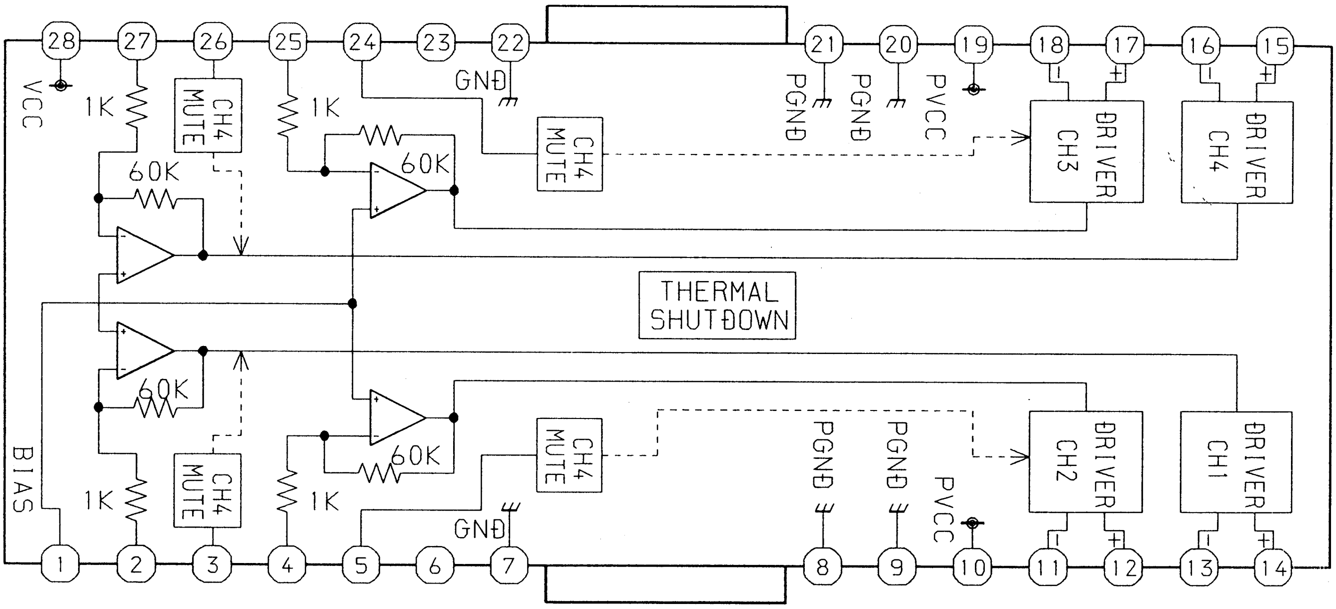
6
7
8
9
10

IC, BA6892FP


28
27
26
25
24
23
22
21
20
19
18
17
16
15
VCC
1K
CH4 MUTE
1K
60K
60K
CH4 MUTE
GND
PGND
PGND
PVCC
DRIVER CH3
DRIVER CH4
THERMAL SHUTDOWN
60K
60K
BIAS
1K
CH4 MUTE
1K
CH4 MUTE
GND
PGND
PGND
PVCC
DRIVER CH2
DRIVER CH1
1
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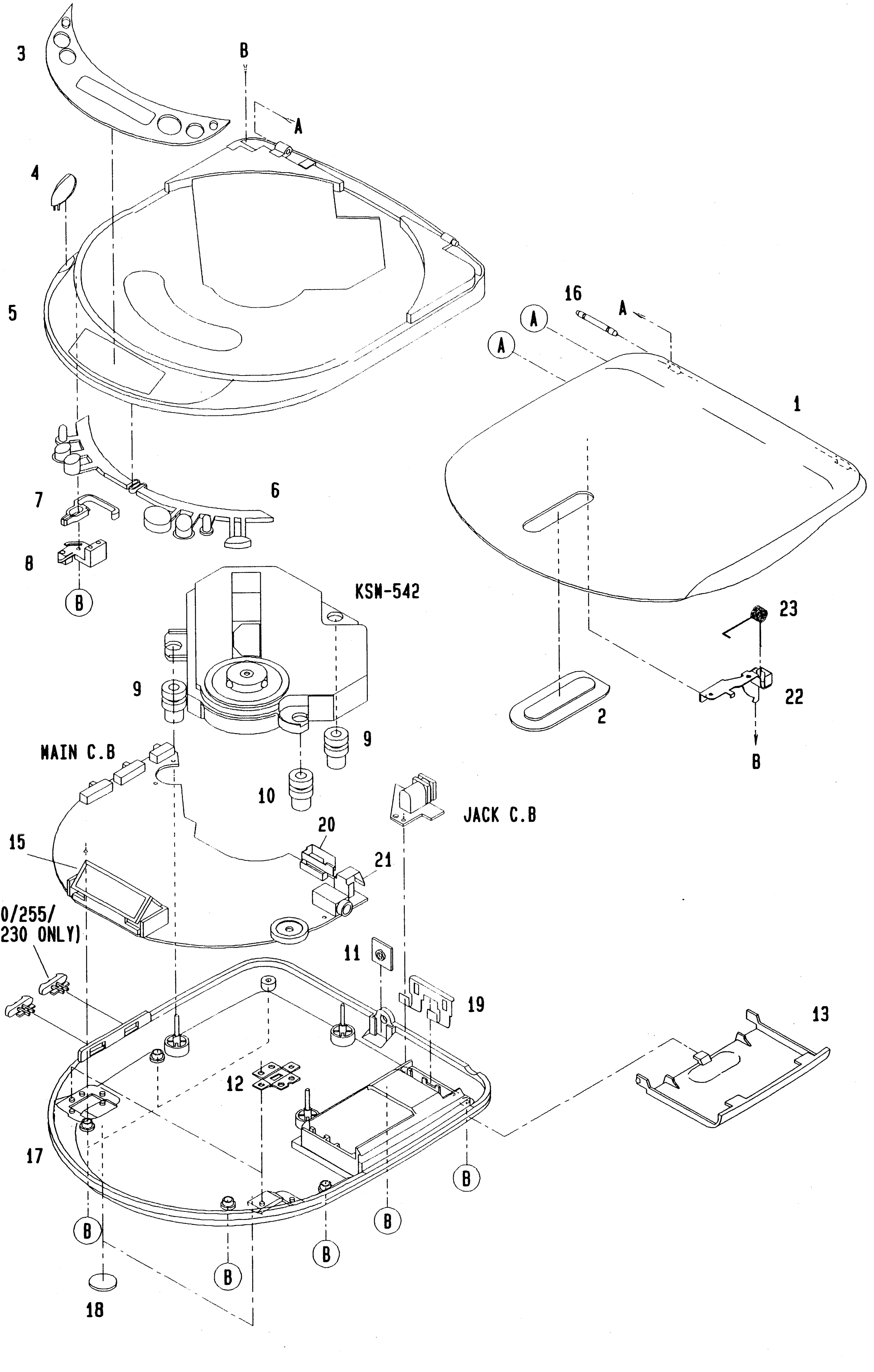
MECHANICAL EXPLODED VIEW 1 / 1

(XP-250/255/230/EX200, XP-350/355/S3)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B
A
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16
A
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B
KSM-542
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B
MAIN C.B
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JACK C.B
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14
(XP-250/255/
EX200/230 ONLY)
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B
B
B
B
B
18

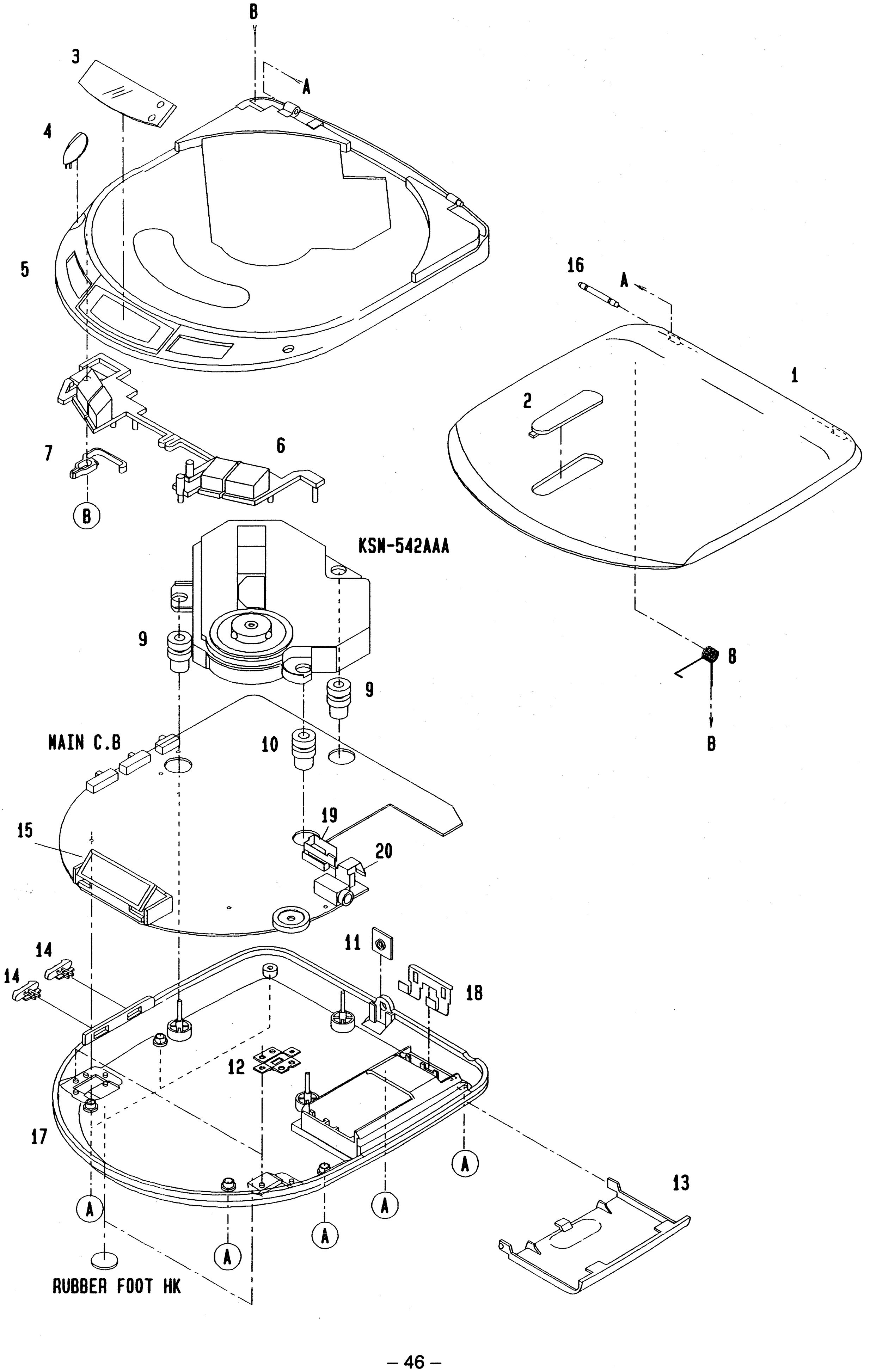
MECHANICAL PARTS LIST 1 / 1 (XP-250/255/230/EX200, XP-350/355/S3)

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	S8-422-500-000		LID,CD<EXCEPT 230,EX200,250AE1S>
1	S8-423-080-000		LID,CD<230>
1	S8-422-390-000		LID,CD<350AE/AU/AHE/AHR,S3>
1	S8-423-070-000		LID,CD<EX200>
1	S8-423-060-000		LID,CD(XP250AE1S)<250AE1S>
2	S8-422-060-000		WINDOW,CD
3	S8-422-440-000		WINDOW,DISPLAY
4	S8-422-450-000		BTN,OPEN<EXCEPT 350AHE1,EX200,230,250AE1S>
4	S8-422-080-000		BTN,OPEN<350AHE1,EX200,230,250AE1S>
5	S8-422-400-000		CAB,TOP<350AE>
5	S8-422-510-000		CAB,TOP<250AE1B,230>
5	S8-423-100-000		CAB,TOP<EX200>
5	S8-422-530-000		CAB,TOP DSL<250AU/AHE/AHR,255AHE/AHR>
5	S8-422-420-000		CAB,TOP HOLD<350AU/AHE/AHR,355AHE,S3>
5	S8-423-090-000		CAB,TOP(XP250AE1S)<250AE1S>
6	S8-422-520-000		KEY,PLAY<EXCEPT 350AE/AU/AHE/AHR,355AHE,S3>
6	S8-422-070-000		KEY,PLAY<350AE/AU/AHE/AHR,355AHE,S3>
7	S8-422-140-000		LEVEL,OPEN
8	S8-422-180-000		GUIDE,OPEN
9	S6-703-027-600		DAMPER,MECHA(2)<EXCEPT 250/255AHR>
9	S6-703-527-600		DAMPER,MECHA(3)<250/255AHR>
10	S6-703-017-600		DAMPER,MECHA(1)<EXCEPT 250/255AHR>
10	S6-703-527-600		DAMPER,MECHA(3)<250/255AHR>
11	83-HC5-209-010		HLDR,JOINT HK
12	83-HC5-214-010		HLDR BOTM HK<350AE/AU/AHE/AHR,355AHE,S3>
12	S8-405-770-000		HLDR,BOTM<EXCEPT 350AE/AU/AHE/AHR,355AHE,S3>
13	S8-422-460-000		LID,BAT
14	S8-422-090-000		KNOB,SLIDE CONTROL
15	S8-422-150-000		GUIDE,LCD
16	S8-424-000-000		LID,SHAFT<350AHR,S3AHR>
16	S8-417-660-000		SHAFT,LID<EXCEPT 350AHE1/AHR,S3AHR,250/255AHR>
16	S8-424-000-000		SHAFT,LID<250/255AHR>
17	S8-422-540-000		CAB,BOTTOM<250AE1B,EX200,230,250AE1S>
17	S8-422-410-000		CAB,BOTTOM<350AE>
17	S8-422-430-000		CAB,BOTTOM<350AU/AHE/AHR,355AHE,S3>
17	S8-422-550-000		CAB,BOTTOM DSL<250AU/AHE/AHR,255AHE/AHR>
18	S8-405-870-000		RUBBER FOOT HK<EXCEPT 350AE/AU/AHE/AHR,355AHE,S3>
18	83-HC5-019-010		RUBBER FOOT HK<350AE/AU/AHE/AHR,355AHE,S3>
19	84-HC4-205-010		BAT-CONTACT A<EXCEPT 350AE/AU/AHE/AHR,355AHE,S3>
19	S5-001-953-300		BAT-CONTACT(A)<350AE/AU/AHE/AHR,355AHE,S3>
20	84-HC4-206-010		BAT-CONTACT B<EXCEPT 350AE/AU/AHE/AHR,355AHE,S3>
20	S5-001-963-300		BAT-CONTACT(B)<350AE/AU/AHE/AHR,355AHE,S3AHE>
21	83-HC4-207-010		BAT-CONTACT C<EXCEPT 350AE/AU/AHE/AHR,355AHE,S3>
21	S8-414-860-000		BAT-CONTACT(C)<350AE/AU/AHE/AHR,355AHE,S3>
22	S5-001-973-400		SPR-P,OPEN(86-HC4-203-019)
23	S5-001-983-500		SPR-T,OPEN(86-HC4-204-019)
A	S5-267-221-700		S-SCREW,+1.4-2.5(BLK)<EXCEPT 350AHE1>
B	87-067-911-010		ST,1.7-9 AB<350AHE1,250/255AHR>
B	87-067-869-010		V+1.7-8 HL(BLK) <EXCEPT 350AHE1,250/255AHR>

MECHANICAL EXPLODED VIEW 1 / 1

(XP-220/S2/AP1)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KSM-542AAA
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MAIN C.B
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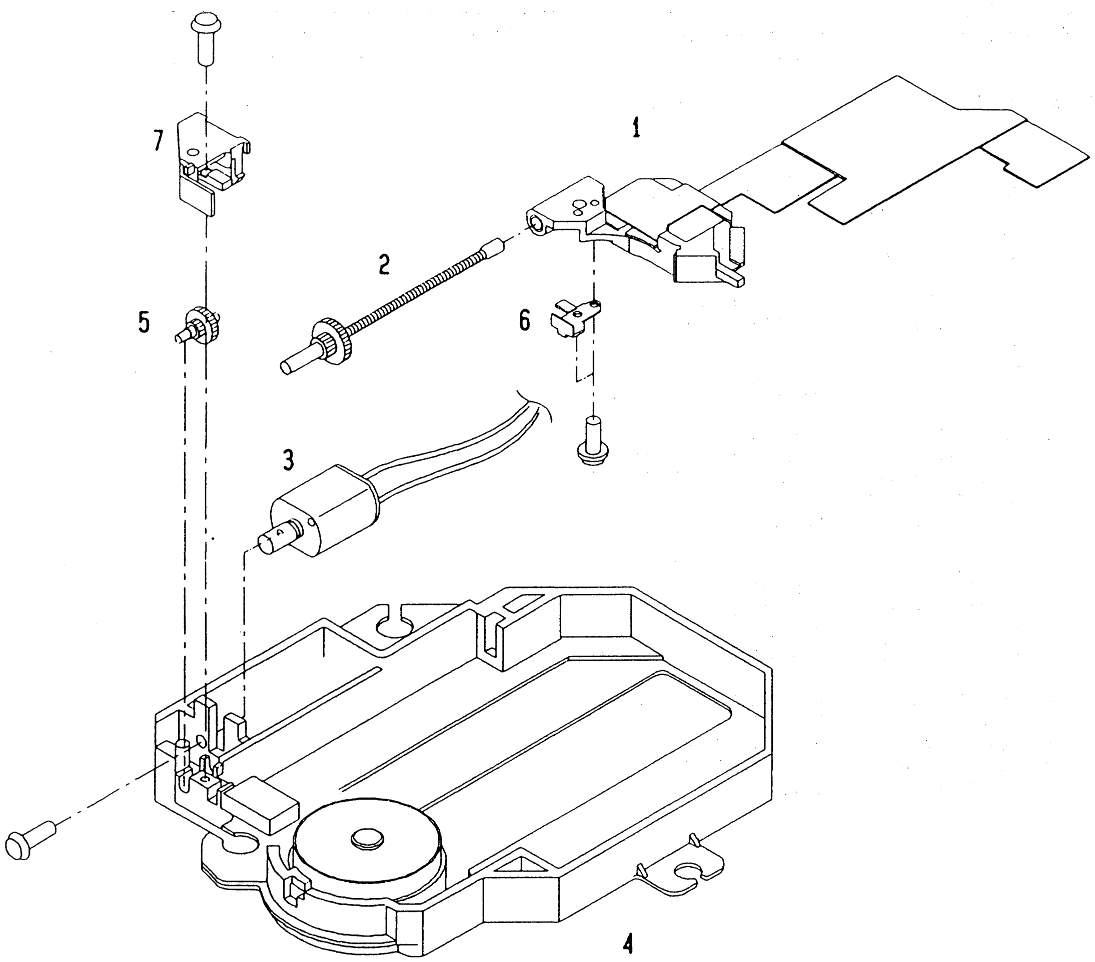
A
A
A
A
A
RUBBER FOOT HK

MECHANICAL PARTS LIST 1 / 1 (XP-220/S2/AP1)

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	S8-422-560-000		LID,CD<EXCEPT AP1>
1	S8-423-110-000		LID,CD(AP1)<AP1>
2	S8-422-300-000		WINDOW,CD
3	S8-422-590-000		WINDOWS,DISPLAY
4	S8-422-330-000		BUTTON,OPEN
5	S8-422-620-000		CAB,TOP<AU,AHE,AHR>
5	S8-422-570-000		CAB,TOP<AK,AE,S2>
5	S8-423-120-000		CAB,TOP(AP1)<AP1>
6	S8-422-600-000		KEY,PLAY
7	S8-422-370-000		LEVER,OPEN
8	S5-001-993-500		SPR-T,OPEN
9	86-HC5-207-019		DAMPER,MECHA(3)<AHR>
9	S6-703-027-600		MECHA,DAMPER<EXCEPT AHR>
10	S8-424-000-000		SHAFT,LID
11	S8-405-750-000		HLDR,JOINT HK
12	83-HC5-214-010		HLDR BOTTOM HK
13	S8-422-610-000		LID,BAT
14	S8-414-940-000		KNOB,SLIDE
15	S8-422-360-000		GUIDE,LCD
16	S8-422-580-000		CAB,BOTTOM<AK,AE,S2,AP1>
16	S8-422-630-000		CAB,BOTTOM<AU,AHE,AHR>
17	84-HC4-205-010		BAT-CONTACT A
18	84-HC4-206-010		BAT-CONTACT B
19	S8-414-860-000		BAT-CONTACT,C
A	87-067-869-010		V+1.7-8 HL(BLK)

CD MECHANICAL EXPLODED VIEW 1 / 1



CD MECHANISM PARTS LIST 1 / 1

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	98-848-470-020		KSS-542A
1	98-848-486-030		KSS-542C
2	9X-262-611-810		SLED SCREW ASSY
3	9A-491-080-4A0		SLED MOTOR ASSY
4	9A-491-087-7A0		MD ASSY
5	92-627-751-010		GEAR BN
6	92-627-754-010		RACK SPRING
7	92-627-753-020		HOLDER

ACCESSORIES / PACKAGE LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

XP-220/S2/AP1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	S5-601-430-000		INSTRUC,BOOK ESC<AHR>
1	S5-601-420-000		INSTRUC,BOOK(ESF)<AU>
1	S5-601-440-000		INSTRUC,BOOK(ESFGI)<AK,AE,S2>
1	S5-601-450-000		INSTRUC,BOOK(ESP)<AHE>
1	S5-601-500-000		INSTRUC,BOOK(GFE)<AP1>
⚠ 2	S3-500-620-000		ADPTR,AC AC-A62<AHR>
⚠ 2	87-042-158-010		ADPTR,AC(E)<AE,AP1>
⚠ 2	S3-500-300-000		ADPTR,AC(HEJ)<AHE>
⚠ 2	S3-500-120-000		ADPTR,AC(K)<AK,S2>
⚠ 2	87-042-157-010		ADPTR,AC(U)<AU>
3	S1-200-333-000		HP,HP-250<EXCEPT AU>
3	87-048-314-019		HP-A272<AU>
4	S1-300-422-800		SPKR,SC-SA27<S2>
⚠ 5	S3-500-280-300		PLUG,ADPTR<AHE,AHR>
6	87-047-153-110		BAT,NB-3A PH<AK,AE,S2>
6	87-047-153-110		BAT,NB-3A PH<AK,AE,S2>

XP-250/255/230/EX200

1	S5-601-370-000		IB,ESC(XP250AHE)<AHE,AHR>
1	S5-601-380-000		IB,ESF(XP250AU)<AU>
1	S5-601-490-000		IB,ESFGI(XP230YE)<230>
1	S5-601-390-000		INSTRUCTION BOOK<AE,EX200>
⚠ 2	S3-500-620-000		ADAPTOR AC AC-A62<AHR>
⚠ 2	87-042-158-010		ADPTR,AC-A62 E<AE,EX200>
⚠ 2	S3-500-300-000		ADPTR,AC-A62(HEJ)<AHE>
⚠ 2	S3-500-090-000		ADPTR,AC-A62U<AU>
3	S1-200-340-300		HP,HP-CR 250N<255AHE,AHR>
3	87-048-314-010		HP-A272<AU>
3	S1-200-333-000		HP-250<EXCEPT AU,255AHE,AHR>
⚠ 4	87-099-789-010		PLUG,ADPTR IR44<AHE,AHR>
5	87-047-153-110		BAT,NB-3A<EXCEPT AU,250AHE,230>

XP-350/355/S3

1	S5-601-330-000		IB,ESF(XP350AU)<AU>
1	S5-601-340-000		IB,ESFGI(XP350AE)<AE>
1	S5-601-350-000		INSTRUCTION BOOK<EXCEPT AE,AU>
⚠ 2	S3-500-620-000		ADPTR,AC-A62HEJ<AHE>
⚠ 2	S3-500-110-000		ADPTR,AC-A62E<AE>
⚠ 2	S3-500-300-000		ADPTR,AC-A62HE<EXCEPT AE,AU,AHE>
⚠ 2	S3-500-090-000		ADPTR,AC-A62U<AU>
3	S1-300-422-800		SPKR,SC-SA27<S3>
4	S1-200-320-300		HP,HP-CR350N<355AHE>
4	87-048-309-010		HP-24 NA N<EXCEPT AU,355AHE>
4	87-048-314-010		HP-A272<AU>
⚠ 5	87-099-789-010		PLUG,ADPTR IR44<EXCEPT AE,AU>
6	87-047-153-110		BAT,NB-3A PH<AE,AU,355AHE,S3>

REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL

サービス技術ニュース	
番号	連絡内容
G— —	
G— —	
G— —	

アイワ株式会社
AIWA CO.,LTD.

912204,750038,931261

Tokyo Japan

〒110 東京都台東区池之端1―2―11 ☎03（3827）3111 （代表）

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